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IDENTIFYING BARRIERS TO ACCESSING AND ESTABLISHING
PRIMARY CARE SERVICES AMONG INSURED PATIENTS WHO ARE
“SUPER-USERS” OF EMERGENCY DEPARTMENTS (EDS)

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requirements for the Nursing Honors Program

ABSTRACT

Introduction: The overuse of the ED for management of chronic disease results in fragmentation of care, often duplicates services, and is costly. Barriers to accessing care in ambulatory care services may increase ED use for chronic disease management. There are few studies that have explored the barriers to accessing primary care services among both private and publicly insured adults.

Purpose: The purpose of this qualitative descriptive study is to identify the barriers to accessing primary care services among insured individuals identified as using the ED for chronic disease management.

Methodology: Qualitative descriptive method guided data collection and analysis. A purposive sample of insured adults from Family Medicine clinic participated in two focus groups. Data were collected through audio-recordings of the focus groups and participant observation. The audio-recordings were transcribed verbatim by a professional transcriptionist and reviewed by the research team members while listening to the audio-recordings. Preliminary codes were developed and collapsed into themes.

Preliminary Results: Although the purpose of this study was to identify barriers to accessing primary care services, the preliminary findings from this small sample suggest that there are not significant barriers to accessing primary care services. Participants did discuss factors that increased utilization of services in ambulatory care clinics, including reciprocal trusting relationships with providers, seamless entry into clinics, and strong support systems.

Conclusions: Further research is needed to continue to explore possible barriers and facilitators to accessing primary care services among a larger population of ED super-users. Additional research is needed with community members not engaged in any health care services.

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INTRODUCTION

BACKGROUND/SIGNIFICANCE

Emergency department (ED) use in the United States has increased dramatically over the past two decades, is a major contributor to wasteful health care spending, decreases the quality of care provided in the ED, and creates fragmentation of care (New England Health Institute, 2010). Between 1992 and 2005, ED visits increased by 28% (Weber et al., 2008). Inappropriate ED usage accounts for over \$38 billion in inefficient spending annually (New

England Health Institute, 2010). Additionally, ED usage is ineffective for management of chronic conditions because it does not provide the continuity of care individuals can expect from a primary care provider (New England Health Institute, 2010).

There has not been a clear consensus in the literature regarding whether the insured or uninsured populations are using the ED at higher rates. However, many sources continue to link the increasing rates of ED usage with individuals lacking health care insurance. However, the uninsured population was not the cause of the increased ED usage from 1992 to 2005 (Weber et al., 2008). Attributing the ED overuse issue solely to the uninsured population not only oversimplifies the problem but it also decreases the likelihood that politicians and hospital administration will support investments in innovative solutions because this population has low voter-turnout for public elections and is not paying for their health services (Weber et al., 2008). There are many alternative explanations for the increased ED usage, “including population increases, the aging of our population, [and] the increased numbers of time sensitive interventions requiring state-of-the-art hospital care” (Weber et al., 2008, p. 112). Furthermore, with the passage of the Affordable Care Act, approximately 32 million additional Americans will acquire health insurance by 2019. Because insured patients are more likely to use the emergency department, we can expect even greater ED usage in the near future (Carrier, Yee, & Holzwart, 2011).

PURPOSE/RESEARCH QUESTION

The *purpose* of this qualitative descriptive study is to identify the barriers to accessing and establishing primary care services among insured patients of an academic

medical center Family Medicine ambulatory care clinic (FMACC) who are “super-users” of emergency departments (EDs).

LITERATURE REVIEW

A literature search was conducted using the CINAHL and PubMed databases with the following limits: English language only and a date of publishing range from 2003-2013. Search terms utilized include: barriers to health care access, access to primary care services, and outpatient care and emergency department usage. Relevant articles identified through the literature search are reviewed individually. From these articles, several common barriers to accessing health care were reported. These barriers include difficulties understanding and navigating the health care system, transportation problems, the inability to pay for services, insensitive providers, and providers who lack knowledge of available resources.

Hines-Martin (2003) reported the results of the qualitative component of a larger mixed methods study evaluating barriers to accessing mental health care among African Americans. The participants in this study included 24 African American, low-income adults. The researchers identified many specific barriers that the participants faced in accessing mental health services. The barriers were categorized into individual, environmental, and institutional barriers. The most commonly expressed barriers were individual barriers such as lack of knowledge or understanding of the problem, and beliefs about seeking mental health services. An environmental barrier to seeking care expressed by the participants was the lack of information, support, and encouragement from others to seek treatment. Institutional barriers included negative impact of health care professionals’

attitudes, waiting time to be accepted for services, and guidelines for services that inhibit access to needed services. The findings of the study show a need for further research related to the stigma surrounded mental health problems in this population. Early intervention for individuals experiencing multiple stressors could help to prevent psychological illness. Interventions to reduce stress should assist families as a whole. The researchers also suggest a cost-benefits study of preventive approaches to mental illness would be useful in the current health care environment with decreased funding and resources.

Lewis and colleagues (2003) conducted a research study aimed to look at perceived barriers to health care for homeless women to predict unmet medical needs in this population. Homeless women (N=974) between the ages of 15 and 44 years old in Los Angeles County participated in the face to face interviews. The results showed that some of the barriers to receiving health care included lack of knowledge of where to go for health services, long office waiting times, and being too sick to find care. Additionally, the researchers found commonly mentioned facilitators of health care access for homeless women included free transportation, the ability to receive care for all health problems and social service needs in the same location, living in a house or apartment, weekend or evening clinic hours, and help from shelters or soup kitchens finding health care. Other facilitators of health care access mentioned by the participants included having a nurse or doctor come to them and receiving food or money at appointments. More than 81% of the women with children interviewed said having appointments at the same time and place as their kids would be beneficial. The researchers suggest educating the homeless women about available health care services when they access shelters and food programs.

Additionally, the health care clinics could provide additional needed services such as laundry and showering facilities while the women wait to see a provider. Free transportation to clinics and treatment for all health care issues and social services in one location are also interventions recommended by the researchers.

Wetta-Hall and colleagues (2005) conducted a qualitative study to explore emergency department use by uninsured individuals. Participants identified financial barriers, such as not being able to pay a \$65 charge for the office visit, or having unpaid bills with the physician's office. The participants indicated that these financial barriers led them to avoid seeking health care until their symptoms were severe. The participants also reported other barriers, such as inadequate transportation, inconvenient office hours, long wait times for appointments, not having a regular doctor, and poor relationships between patients and physicians. The participants indicated that they were not offered health insurance at their place of employment, but would buy the employer's insurance if it was available. To reduce their ED visits, the participants also indicated that ED physician referrals to primary care providers would be beneficial.

Cheatham and colleagues (2008), in a review of the literature, discussed the barriers and facilitators black men in the United States face to accessing health care. One facilitator for access to health care for black men described by the authors was military veteran status. The cost of prescription medications or ability to keep appointments was not a problem for veterans. Additionally, the authors recognized that religion could be either a facilitator or a barrier to individuals receiving health care. Religion serves as a facilitator when an individual recognizes his body as God's temple and feels responsible to care for it;

it serves as a barrier when the individual accepts illness as God's will. Another important facilitator for black men seeking and receiving health care is the health care provider's personal characteristics. Black men who were interviewed recognized that they valued providers who showed compassion, were truthful about the patients' health conditions, and were interested in other aspects of the patients' lives such as personal and social issues. The authors also recognized that certain studies found that black people preferred to have a black health care provider to eliminate feelings of racism and mistrust of the health care system. They also found that health care outreach programs would be a more effective facilitator to health care access for black men if they were held in places where these individuals congregate such as churches, health clubs, and barbershops. Finally, in another study they reviewed in their article, black men recognized women family members as important encouragers for seeking health care.

Nandi and colleagues (2008) looked at undocumented Mexican immigrants' access to health services in New York City. In this study, participants were 18 years or older, born in Mexico, and current residents of New York City. There were 431 respondents in this study based on the criteria on undocumented status. The researchers found that the women interviewed were almost three times more likely than men to have a regular health care provider. The researchers also found that respondents who arrived in the United States before 1997 were more likely to receive regular health care services than those who arrived after that year. This is consistent with previous findings that access to health care services increases with increased time in the United States. The researchers suggest this occurs because the individuals become more familiar with the U.S. health care system and learn how to navigate it. The researchers found that financial and social resources are

important determinants of health insurance coverage and access to a regular provider among undocumented Mexican immigrants, even after accounting for differences in health need. The authors also discussed legislation that could create a barrier to immigrants accessing care: "In 1996, the United States passed legislation that further restricted the provision of many publicly funded services to undocumented immigrants, making it perhaps even more difficult to obtain health services than it was before the legislation" (Nandi et al., 2008, p. 2016). Another barrier to accessing health care common to many respondents was the fear of being discovered by government officials.

Robinson and colleagues (2008) conducted a systematic review of ten studies related to intimate partner violence. In each of the studies reviewed, victims of domestic violence were either interviewed, participated in focus groups, or completed questionnaires. Victims expressed several barriers to accessing care such as a lack of privacy, a fear of the consequences of disclosing domestic violence (such as fear that children would be removed from the home), and feelings of guilt, shame, and powerlessness. An additional recurring theme was victims' perception of lack of understanding or inappropriate responses by healthcare providers when discussing domestic violence. Based on these findings, the authors concluded health care professionals and policy makers needed to consider the location and timing of domestic violence services. Also, all health care professionals should be educated about domestic violence and child protection. Perceived barriers to accessing care also need to be addressed in health care. Last, victims of domestic violence need more consultations with providers during the help-seeking process.

Hudson and colleagues (2010) conducted a study to determine homeless young adults' perspectives on facilitators and barriers to receiving health care as well as to determine how the existing health care programs for this population can be improved. The participants included 24 homeless youth. Several participants reported the need for better access to mental health services. In addition, participants commented on the long wait times at health clinics and the limited days and times that these clinics were open. Participants also commented on the perception that society was trying to make the homeless population invisible and arrest them for being on the streets rather than helping them find help. Some implications for practice based on these findings include the need for increased community resources and providers who are well informed of outreach programs for homeless young people.

Gindi and colleagues (2012) provided insight into the reasons adults aged 18-64 seek emergency department health services. Patients' responses to questions on the National Health Interview Survey (NHIS) were utilized to draw conclusions about emergency department usage. The researchers found that 79.9% of individuals surveyed who visited the emergency department in 2011 did so because of a lack of access to other health care providers.

There were several common barriers to accessing health care reported across the articles including difficulties understanding and navigating the health care system, transportation problems, the inability to pay for services, insensitive providers, and providers who lack knowledge of available resources. Some implications for practice include the need for increased community health care resources with extended hours and

times, the need for free transportation to medical appointments, increased awareness on behalf of providers of available resources, and improved dissemination of information regarding these resources. There is a lack of information in the current literature looking globally at insured adults and there is minimal information on factors that serve as facilitators to accessing primary care services.

The results of the literature review indicated that many studies have been conducted to learn more about specific populations' primary care access challenges. These specific populations of people, including African Americans in need of mental health services, homeless youth, homeless women, victims of domestic violence, undocumented Mexican immigrants, and uninsured individuals have specific health care access concerns and needs. Our study aims to identify the barriers to accessing and engaging in primary care services among a wide range of publicly and privately insured individuals.

METHODS

The purpose of this study was to identify the barriers to accessing and establishing primary care services among insured patients of an academic medical center Family Medicine ambulatory care clinic (FMACC) who are "super-users" of emergency departments (EDs). Qualitative descriptive method was used for data collection and analysis. To ensure minimal harm to participants, the research team's study protocol was granted approval from the medical center Institutional Review Board prior to data collection and analysis. Additionally, the researchers have completed the Institutional Review Board Conduct of Scientific Research modules prior to beginning data collection;

this provides documentation that the researchers have been trained in ethical conduct of scientific research.

RECRUITMENT AND DATA COLLECTION

A Family Medicine RN Coordinator contacted patients who met the inclusion criteria, (adults the over the age of 18 years; ED super-user; referred to Family Medicine clinic; public or private insurance), explained the purpose of the study, and asked for permission for the research team to contact them about participating in the study. To this point in time, 12 patients provided permission to be contacted. Student assistants contacted the potential participants via telephone. The focus groups were conducted in the evening on a medical center campus in a private room. During the focus groups, the researchers obtained informed consent. One investigator facilitated the sessions using a semi-structured interview format (Appendix) and one investigator recorded the sessions. Participants were provided a monetary incentive. The focus groups were audio recorded and a professional transcriber cleaned the information of personal identifiers.

DATA ANALYSIS

The researchers read through the transcripts along with their own written notes from the focus groups and listened to audio recordings. The transcripts were read again to identify codes with the purpose of the research study in mind. Codes were categorized and preliminary themes were identified. The research team met to discuss the codes, categories, and preliminary themes.

RESULTS

SAMPLE

A purposive sample of five insured adult patients from an academic medical center family medicine clinic was utilized in two focus group sessions. This population was patients who had been identified as super-users of the ED (>1 ED visit in any 30 day period in a 12 month period) and had established care at the Family Medicine Clinic. Although only three individuals participated in the first focus group, two in the second focus group, a total of ten were invited. 60% of the sample was Caucasian females. Two participants were African American. The mean age of the participants was 46 years (range of 20 to 56 years).

PRELIMINARY THEMES

The themes that have emerged from the data analysis are preliminary due to ongoing recruitment and data collection. Two primary factors were found to help some participants access and engage in primary care, however, these same factors hindered access for other participants. These preliminary themes are (1) Perceptions of a collaborative relationship with the provider impacts decision to seek care and (2) Support systems effect sustained engagement in health care services. Interestingly, unique barriers to accessing primary care did not emerge through the analysis.

Theme: Perceptions of a collaborative relationship with the provider impacts decision to seek care.

Positive Impact: Increased likelihood of utilizing primary care services. This preliminary theme conveys the value patients placed on their relationships with their providers. Participants expressed that they would wait longer to receive health care if they were able to see their personal provider. Clear communication also created trusting relationships between the patient and provider. One participant stated, "All of my doctors communicate

with each other with him about what's going on," and "I know them [the specialists] real well and they're really nice." Because the participants knew their primary providers were communicating with their specialists and the nurses were following up with the patients on the treatment plan, trust was enhanced.

Further, participants acknowledged the efforts by the clinic to accommodate patients' urgent needs. One participant stated, "He stays there till about like 7:00, 8:00 at night. It all depends on who his last patient is and everything, he stays there until they're done." One participant explained her satisfaction with short wait times: "All the [clinics] I've been through up here through XX I've got in and got out in no time." This level of accommodation observed by patients increased their likelihood of using primary care services.

Negative Impact: Seeking health care from multiple or alternative sources. Participants who did not have a quality working relationship with their primary care provider did not feel their health care needs were adequately met. External health services were pursued when there was a lack of trust and collaboration between the patient and the provider. A participant stated, "I think he's just rushing cause he's been pressured with the same situation, pain or whatever, I think he rushed it, but it just might be me." Patients feel they are not receiving comprehensive, quality care when they are not engaged in a collaborative relationship with the provider. One participant said, "I always get a second opinion though cause the doctor I'm seeing here we don't really see eye to eye no more." Because the patient perceives that the provider does not trust him, it negatively impacts his decision to seek care at the ambulatory care clinic. The participant stated, "That's why I go to

emergency because [my doctor stopped], you know, giving me the right shots, you know, whatever needed to be done.” The Emergency Department is perceived as accessible place to attempt to fulfill health care needs unmet by the provider.

Theme: Familial, employer, and other external support systems effect sustained engagement in health care services.

Positive Impact: Increased accessibility to primary care services. Participants acknowledged family members, community programs, and employers who assisted with engagement in health care services. Help and support from family members allowed participants to go to appointments. One participant stated, “I always have a way. My family’s pretty understanding, so if I need to go.” Other participants acknowledged community services that were able to provide necessary transportation to medical appointments when family members were not available. Participants also recognized employers as supportive of obtaining health services. A participant stated, “My work is understanding. They know my issue and I have been hospitalized many times since I have worked there and they are pretty understanding.” Individuals are better able to schedule health care visits when they do not fear losing their job or being otherwise reprimanded by employers.

Negative Impact: Decreased likelihood of visiting clinics. Inflexible work schedules and employer policies create barriers for patients to receive primary care. One participant stated, “Can’t take off work.” In this way, for some participants, employers hinder accessibility to health care. Furthermore, for participants who relied on family members for transportation, they could not visit clinics while family members were at work. A

participant recalled, “Everybody work in the daytime so normally at night time that’s when I would show up in the emergency room, because they all could get me there.” A lack of employment support for health care needs created barriers for participants to access care.

DISCUSSION

In this qualitative study, we identified two preliminary themes that served as facilitators to accessing care for some participants while hindering access to care for others. We found that patients’ perception of a collaborative relationship with providers impacts their decision to seek care. Positive feedback was received for providers who cultivated a trusting relationship with their patients. Flexibility in scheduling appointments with physicians also increased accessibility to primary care for individuals. Subsequently, these patients relied on the clinic for coordination of all their health care needs. Patients did not prefer to visit the clinic when they experienced providers who rushed through appointments and did not actively listen to their concerns. They expressed needing Emergency Department services to receive unmet health care needs.

Some participants felt that their provider rushed through their appointments. Based on this identified perception, it would be beneficial for the Registered Nurse to be the last member of the health care team to see the patient and answer any remaining questions or address concerns. Approximately 10.5% of Registered Nurses in the United States are employed in ambulatory care settings (DHHS Health Resource and Services Administration, 2010). With few RNs, unlicensed assistive personnel historically have performed the majority of patient care tasks in ambulatory care settings. “The range of possibilities for RNs providing primary care is significant, and their capacity for filling these roles is not

always recognized” (Institute of Medicine, 2011, p. 55). Maximizing the roles of Registered Nurses in the clinic setting could improve relationships between patients and the health care team.

Additionally, adequate support systems allowed patients to make it to regularly scheduled appointments with primary care providers. Family and community programs provide transportation for individuals, which increase accessibility to health care services. The workplace also accommodates for individuals health care needs and supports access to primary care. However, those with inflexible work schedules perceived this as a significant barrier to scheduling appointments at clinics and accessing care. This would also potentially decrease ED use for chronic disease management. Patients who report less difficulty contacting their physician after hours have significantly lower rates of ED visits (30.4% compared to 37.7%). In the United States, approximately 29% of primary care providers provide care after hours (O’Malley, 2013). Flexible clinic hours or provider availability after regular clinic hours by phone or email would decrease unmet health care needs.

The researchers acknowledge some limitations to this study. In terms of the recruitment procedure, the participants who agreed to take part in the study may have been healthier, more physically able, and more motivated to attend appointments (such as the focus group session and clinic appointments), than those who declined to attend. The small sample size yielded very preliminary data and limits the transferability of the findings to a larger population. Further research is needed to more fully evaluate whether or not the larger population of ED super-users experiences the identified facilitators and barriers.

CONCLUSION

This study is ongoing and the findings are preliminary. However, the positive effects of collaborative patient-provider relationships and strong support systems can have on access to and engagement in primary care are encouraging findings. The negative impact of poor patient-provider working relations and lack of support systems are important findings as well. These findings can facilitate improved efforts of behalf of the clinic to ensure all of the patients' needs are met.

APPENDIX A

FOCUS GROUP SEMI-STRUCTURED INTERVIEW GUIDE

Thank you for participating in this research study. You have been asked to participate because you sought healthcare at the emergency department and at that time were referred to _____. We are interested in finding out as much as we can about the things that prevented you from getting care at _____ clinic. We also want to find out what things helped you to access and stay in care at _____ clinic.

Tell me about your experiences with taking care of your health.

Prompt Questions

When you need health care, what do you do?

When you need health care, where do you go?

What things prevent you from getting care at a clinic?

Transportation?

Cannot get off from work?

Cannot find childcare?

Language barriers?

What makes it possible for you to go to a clinic?

What makes you decide to go to the emergency room?

Prompts to elicit more information.

Tell me more....

Help me understand....

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PERCEPTIONS OF HEALTHCARE PROVIDERS ABOUT HIV/STD
PREVENTION EDUCATION AMONG AMERICAN INDIAN
POPULATIONS: A QUALITATIVE DESCRIPTIVE SURVEY STUDY

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ABSTRACT

Background: Unmet healthcare education needs of American Indian and Native Alaskan (AI/NA) adults remain significant in the United States. Disparities have been identified in healthcare access, health status, and preventative care. HIV/STD's disproportionately affect AI populations compared to Caucasians but remain lower than African American and Hispanic/Latino races in the US. However, American Indians have poorer survival rates of HIV and face significant cultural based stigma and poverty. Understanding the perception of HIV/STD prevention education from a community perspective is important to develop comprehensive educational programs.

Purpose: The purpose of this study is to examine the perceptions of healthcare providers about HIV and STD/STI prevention education among AI/NA tribal populations.

Theoretical Framework: This project is based upon the community-based participatory research model (CBPR), which integrates education and social action to improve health and reduce health disparities. The major tenets of this framework highlight community involvement in the research process and understanding the historical context of the population to include culture, beliefs, and norms that may be critical in designing preventative health educational initiatives.

Methodology: We will conduct a qualitative descriptive exploratory study to examine the perceptions of healthcare providers who care for adult AI/NA men and women. We will conduct face-to-face interviews and online surveys using a purposive sample design. The estimated sample size is approximately 15 participants. Interviews will be recorded and content analysis will be conducted to identify categories and themes perceived as important to providing culturally appropriate HIV/STD education in the future.

Findings: The study remains open for data collection until May 31, 2014.

Conclusion: HIV and STD's remain a significant health threat to American Indian populations. The information elicited from this study will be used, with data collected in future studies with key AI/NA tribal leaders and members, to develop a culturally appropriate HIV/STD intervention to increase knowledge and prevention strategies to ultimately decrease the incidence and prevalence of HIV and STDs.

Introduction

INTRODUCTION

Human Immunodeficiency Virus (HIV), Acquired Immune Deficiency Syndrome (AIDS), and sexually transmitted diseases (STDs) are significant health issues for American Indians and Native Alaskans (AI/NA). Rates of HIV/AIDS and sexually transmitted diseases/sexually transmitted infections (STDs/STIs) disproportionately affect American

Indian men and women in the United States as compared to Caucasians but remain lower than African American and Hispanic Latinos (Centers for Disease Control and Prevention CDC, 2011). In addition, mistrust, stigma, cultural taboos, and confidentiality concerns remain significant barriers to receiving healthcare and education related to these diseases in the AI/NA populations (Kaufman, et al., 2007; Pacheco, Daley, Brown, Filippi, Greiner, & Daley, 2013)

RESEARCH AIMS

Specific Aim: The specific aim of this qualitative descriptive exploratory survey study is to examine the perceptions of healthcare providers about HIV and STD/STI prevention education among AI/NA tribal populations.

Research Questions:

1. What are healthcare providers' perceptions about HIV & STD/STI educational needs among their AI/NA patient populations?
2. What are healthcare providers' methods of HIV & STD/STI prevention education for AI/NA patients?

BACKGROUND

Although in 2011, American Indian/Alaska Natives ranked fifth in the estimated rates of HIV infection diagnoses, HIV disease remains a significant health issue among this population. HIV/AIDS is the ninth leading cause of death among AIs. AIs/NAs have the shortest survival time with disease and progress to AIDS diagnosis (CDC, 2011). In AI men diagnosed with HIV, Male-to-male (MSM) contact accounts for 84% of the infections

followed by MSM and injection drug use (IDU) (6%), heterosexual contact (6%) and IDU at 4%. In women, the leading cause of HIV infection is from heterosexual contact (83%), followed by IDU (15%) (CDC, 2011).

Sexually transmitted diseases are a significant health problem for American Indian populations. In a study by Kaufman, et al (2007), the STD prevalence in the North Central Plains AI/NA was 6 times higher than the overall US rates. Rates of STD's range from 2.7-7.8 times higher in a sample of AI as compared to non-Hispanic white (NHW) individuals presenting the continual burden of STD's in the AI/NA population (Winscott, Taylor, & Kenney, 2010). Risk factors for high STD such as chlamydia, HPV, Gonorrhea, and Syphilis rates in AI include young age of first sexual encounter, multiple sex partners, lower socioeconomic status, multiple sexually transmitted disease diagnoses, smoking, poor nutrition, multiple childbirths, and lower age (Bell, Schmidt-Grimminger, Jacobsen, Chauhan, Maher, & Buchwald, 2011; Dicker, Mosure, Kay, Shelby, Cheek, 2008). Significant delays in treatment of STD's in AI populations have been noted (Winscott, Taylor, & Kenney, 2010) placing the individual at significant risk for long-term health problems such as cancer and infertility (Dicker, Mosure, Kay, Shelby, & Cheek, 2008). The disproportionate number of young AI/NA diagnosed with HIV/and/or STDs suggests that current primary and secondary prevention interventions are not effective. Tribal and state laws governing screening and treatment of minors pose many challenges to prevention activities (Kaufman, et al., 2007).

Effective educational interventions utilizing tribal and cultural beliefs to promote education, screening, diagnosis and treatment of HIV/STD in AI are needed (Kaufman, et

al., 2007; Markus, 2012; Winscott, Taylor & Kenney, 2010; Vernon & Jumper-Thurman, 2002). Kaufman, et al (2007) from the Task Forces on STD Prevention and Control among American Indians and Alaska Natives suggests that using the local cultural and context specific knowledge such as understanding sexual health in AI/NA's be used to guide research and interventions to reduce the burden of HIV/STD's in this population. The use of culturally-appropriate education and materials has been shown to be effective in a smoking cessation program for AI (Makosky Daley, et al., 2010) and in a HIV/AIDS prevention intervention for AI and NA youth (Kaufman, Litchfield, Schupman, & Mitchell, 2012). Furthermore, by including providers and tribal leaders' views in assessing the perspective of the AI population can offer insight into the community views on healthcare needs (Daley, et al., 2012).

This is an interprofessional collaborative research study between nursing, social work, and medicine to understand healthcare providers' perceptions of the educational needs regarding HIV and STD's. The information elicited from this study will be used, with data collected in future studies with key AI/NA tribal leaders and members, to develop a culturally-appropriate HIV/STD intervention to increase knowledge and prevention strategies to ultimately decrease the incidence and prevalence of HIV and STDs.

THEORETICAL FRAMEWORK

Community Based Participatory Research (CBPR) is "an orientation to research that focuses on relationships between academic and community partners, with principles of colearning, mutual benefit, and long-term commitment and incorporates community theories, participation, and practices into the research efforts" (Wallerstein & Duran,

2006). This methodology applied to Indian American (AI) populations has included working within the historical and cultural framework of the population with an emphasis on community inclusion. Fisher and Ball (2003) note that the values and beliefs of the community form the central core of intervention. Therefore the researcher should obtain formal consent from the Tribal Council and work closely with cultural, religious, and spiritual leaders, elders, and relevant individuals from tribal programs. CBPR may also include seeking facilitators who can encourage clear communication between researchers and tribal members, and including community members at all levels of the research project. Lastly, researchers have noted that focus groups are means to obtain feedback about interventions. Evidence indicates that these empowerment strategies can improve health among different subpopulations particularly at risk for social exclusion, including those at risk for HIV/AIDs (Wallerstein & Duran, 2006).

Daley et al. (2010) have utilized CBPR in colorectal cancer screening, breast cancer screening, and Internet health information initiatives for AI's in Kansas and Missouri. Methods of community involvement included forming the American Indian Health Research and Education Alliance, presence at a number of community pow wows, dinners and symposiums, and offering free health information and screenings. They additionally conducted in person interviews to determine community member interest in health topics. Presence and input from the community will likewise guide this initiative.

METHODS

DESIGN

The proposed study will use a qualitative descriptive design. This inductive approach provides an in-depth understanding of a phenomenon of concern in nursing and healthcare (Sullivan-Bolyai, Bova, & Harper, 2005). It also allows the researcher to describe the phenomenon of interest with minimal interpretation of data (Sandelowski, 2000). A key benefit of the methodology is the ability to obtain an in-depth subjective view into the perceptions HIV/STD education among healthcare providers. Qualitative description was used to provide a preliminary understanding of this scarcely researched phenomenon (Sandelowski, 1999).

SAMPLING AND PROCEDURES

A purposive sampling design will be used to target healthcare providers who care for adult AI/NA men and women. The recruitment flyer (appendix A) will be distributed at the March Conference hosted by the Kansas AIDS Education and Training Center (KAETC) and sent to clinics that provide direct care to American Indian populations in Kansas through the KAETC email list serve. If persons wish to be contacted about the survey at the KAETC meeting, we will collect their email addresses and send them the link to the survey via Survey Monkey or they may call or email the PI of the study to obtain the survey link.

Inclusion criteria include: older than 18 years of age, the ability to read and speak English, and provides health care and healthcare services to the American Indian population.

Written consent will be obtained if providers elect to be interviewed in the audiotaped face-to-face format.

The face-to-face interviews will be conducted using a structured interview guide (appendix B) and will be audio-taped for transcription. Basic demographic information (appendix C) will be collected prior to focus group or one-on-one interviews. Researcher notes will be taken immediately after the session.

If participants elect to complete the survey in the online format, they will be asked to read the information sheet prior to answering the survey questions. Consent is assumed if the participants fill out the demographic data sheet and the survey questions.

DATA ANALYSIS

The study personnel will transcribe the transcripts verbatim. The transcripts will be de-identified to uphold confidentiality of the participants. The research team will read the transcripts while listening to the audio recordings to ensure accuracy of the transcripts. The researchers will use content analysis to examine the data. Qualitative content analysis uses a systematic format to develop codes, or labels to describe data from careful reading of the interview transcripts (Knafl, & Webster, 1988; Morgan, 1993).

The research team will read through the transcripts, and listen to the audiotapes to ensure the accuracy of the transcripts. The online responses to the survey questions will be read and reviewed. Initial impressions of the interview will be noted in a reflexive journal. A codebook will be created to list, organize and arrange codes. The purpose of coding is to cluster large pieces of data into a smaller number of focused descriptive themes (Miles & Huberman, 1994; Morgan, 1993). Codes will then be consolidated where possible, and

ongoing attempts will be made to compare and contrast patterns across the data (Creswell, 2003). Codes will be used to develop themes and that describe the perceptions HIV/STD education among the three groups. Descriptive statistics will be used to describe the sample demographic data.

RESULTS

The sample consisted of three participants so far. Because the survey is still open to participants, data saturation has not been reached. We disclose that one of the surveys is incomplete. Respondents were all female and all from the Midwest. Participants had on average 7.5 years (range 1-15) of experience working with AI populations and included an RN, APRN, and social worker. Preliminary findings suggest that caring for members of the AI population is very rewarding and very challenging. Barriers include: trust, geographical distance to healthcare, substance abuse, myths and traditional beliefs, and family crises. Survey results also recommend the following education methods: talking circles, handouts, talking with every visit, various formats, phone applications, online materials, and native specific materials. One respondent noted that it might be hard to address each individual tribal belief culture and recommends fundamentally providing information about contracting diseases regardless of beliefs. From the provider prospective one should be very forthcoming with every disease and diagnosis. She stated, "Because you believe you cannot contract it does not make it so."

DISCUSSION

These findings correlate with current research that factors such as trust, access, active substance abuse, travel time, and family dynamics are barriers to AI populations (Kaufman,

et al., 2007; Pacheco, Daley, Brown, Filippi, Greiner, & Daley, 2013). These also reconfirm the utility of culturally specific education methods (Makosky Daley, et al., 2010; Kaufman, Litchfield, Schupman, & Mitchell, 2012). A novel recommendation is the use of talking circles. "The circle process establishes a safe non-hierarchical place in which all present have the opportunity to speak without interruptions" (Umbreit, 2003, pg. 1). This technique has been widely used among hundreds of tribes of AI in this country (Umbreit, 2003; Struthers, Hodge, Geishirt-Cantrell, & De Cora, 2003). An additional new insight is that technology based education may be beneficial to AI youth. Kaufman et al. (2012) have similarly developed computer-based versions of an HIV/AIDS prevention intervention for American Indian and Alaska Native youth.

We are anticipating approximately 12 future survey results. Therefore the projected total sample size is small but appropriate for a qualitative descriptive study. Results may be limited to a certain geographical area thus we could not make assumptions about provider perceptions in regions outside of the Midwest. The data may not be transferrable to populations outside of this particular group and the themes that emerge from the participants may not be representative of the other providers AI populations outside of this region.

CONCLUSION

HIV and STD's remain a significant health threat to American Indian populations. Data confirm barriers to HIV/STD prevention education among AI populations. Data also confirm the need for interventions utilizing tribal and cultural beliefs and further suggest the utility of talking circles and technology as educational tools. The information elicited

from this study will be used, with data collected in future studies with key AI/NA healthcare providers, tribal leaders and members, to develop a culturally appropriate HIV/STD intervention to increase knowledge and prevention strategies to ultimately decrease the incidence and prevalence of HIV and STDs. We propose to interview the community members and tribal leaders in addition to healthcare providers as part of this ongoing project.

APPENDIX A

RECRUITMENT FLYER

**PERCEPTIONS OF HIV/STD PREVENTION EDUCATION AMONG
HEALTHCARE PROVIDERS: A QUALITATIVE DESCRIPTIVE
SURVEY STUDY**



We invite you to participate in a study if you are a healthcare provider for persons of American Indian/Native Alaskan heritage and would like to discuss your perception of HIV/STD education in this population.

If you are interested in participating in this study: please contact Lisa Ogawa (study PI) at 617-851-1508 or email at logawa@kumc.edu

You may participate in the online secure survey through Survey Monkey at the following link:
<https://www.surveymonkey.com/s/2NNGVHL>

Thank you!

KUMC IRB: STUDY00000994



APPENDIX B

FACE-TO-FACE AND ONLINE SURVEY QUESTIONNAIRE

HealthCare Provider Questions
What is like caring for the AI population?
Do you provide care to individuals with HIV and STD's in your practice? If so, will you describe the population you care for and approximately how many persons do you see per month.
What cultural beliefs do you encounter in providing care to the AI population? How do these beliefs impact health care overall and how do they impact HIV and STD education and prevention?
What cultural barriers exist when providing education related to HIV and STD prevention?
How do you educate your patients about prevention of HIV and STD's in your practice?
What strategies could be helpful in providing prevention education to the AI population about HIV and STD education?
Do you have any other suggestions as a healthcare provider about providing prevention education to the AI population that might be helpful?

APPENDIX C

DEMOGRAPHIC WORKSHEET

Gender	Male Female
Type of Provider: MD/DO, APRN, PA	MD DO APRN PA RN Social Work Mental Worker Public Health Professional Other Please List
Years working with AI population	
Geographical area in which you work:	Midwest West Northeast

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UNASSISTED FALLS AND THEIR ASSOCIATION WITH VARIOUS NURSING WORKFORCE VARIABLES

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Submitted to the University of Kansas School of Nursing in partial fulfillment of the
requirements for the Nursing Honors Program

ABSTRACT

Purpose/Background: Prevention of falls remains a high priority for hospitals, due to their negative effect on patient hospital stays and outcomes. Approximately 30% of falls result in some form of injury with 6 to 8% resulting in serious injury. Specifically, unassisted falls, which account for 85% of total falls in the hospital, can be particularly detrimental to patient outcomes and have a higher rate of patient injury with varying severity. On average, a patient who experiences a fall can expect their hospital stay to cost an additional \$4,322 more than a patient who does not fall. Current nursing research on falls is abundant; however, at present, the association between staffing numbers and falls is not well understood. The purpose of this study was to explore the unit-level association between the percentage of unassisted falls and three nursing workforce variables: total RN staffing hours per patient day, total non-RN staffing hours per patient day, and percentage of baccalaureate-prepared nurses.

Theoretical/Conceptual Framework: The Donabedian conceptual model of healthcare quality is being used as a framework in our study to examine structure and outcomes. Specifically, in our study, total staffing hours and RN level of education are structural variables, while the outcome was patient falls.

Methods: A cross-sectional, quantitative analysis using 2012 unit data for medical, surgical, medical/surgical, and rehab units in U.S. acute care hospitals. Only units participating in the National Database of Nursing Quality Indicators were included.

Results: Percentage of falls assisted varied by unit type. For RN staffing, a weak, positive relationship was shown for all four unit types in a general linear fashion. For Non-RN staffing, a weak, positive relationship was shown on surgical and medical/surgical units; however, rehab and medical units showed variation with no significant overall change or relationship noted. For percent BSN staffing, no clear association could be drawn except for a weak, negative relationship shown on rehab units.

Conclusion: According to our findings, a higher percentage of RN staffing on a given unit may be associated with higher percentages of assisted falls and lower percentages of unassisted falls. A clear association between falls and staffing could not be ascertained when analyzing the variables of non-RN staffing and percent BSN staffing. Current research shows that assisted falls are less likely to result in patient injury in comparison to unassisted falls. Preventing unassisted falls on the units remains a way to improve patient outcomes, decrease the length of hospital stays, and reduce injuries. According to our findings, bolstering the numbers of RN staffing may be a way to achieve this.

INTRODUCTION

Patient falls continue to present a significant challenge and ongoing issue for acute-care hospitals, long-term care facilities, and community health clinics in the United States. This topic has received a considerable amount of attention devoted to research and findings,

both past and present, across the spectrum of academic institutions, government agencies, quality control agencies, and patient safety organizations (Staggs, 2013). Falls may contribute to a myriad of secondary issues in the hospital setting, including a higher likelihood of severe injury (e.g. hip fracture, traumatic brain injury), extended patient stays, higher rates of discharge to institutional care, and overall worsened patient outcomes (Oliver, 2010). An additional factor in the analysis of this topic is the tremendous costs that the hospital may incur as a result of a patient falling. According to an analysis in the American Journal of Medicine, a patient suffering a fall who sustains injury is reported to have hospital charges over \$4,200 higher than patients who do not fall (Hitcho, 2004). The Joint Commission Center for Transforming Healthcare estimates an even higher financial cost of \$14,056 in total costs related to interdisciplinary treatment and secondary infection ("Facts about,," n.d.). In addition to the physical harm, patients may also experience significant emotional distress and depression, and relegate them to a lower level of functioning that often does not return to pre-injury levels (Scaf-Klomp, 2003). The collective financial and emotional burden placed on both patient and hospital due to a hospital-acquired condition that is often preventable such as falls stands as reason for further research.

Despite bolstered efforts to predict and treat this issue, falls among hospital inpatients remain a common occurrence, generally ranging from 2.3 to 7 falls per 1,000 patient days (Hitcho, 2004), or according to research from the Agency for Healthcare Research and Quality, between 700,000 and 1,000,000 annual falls in U.S. hospitals ("Preventing falls," 2013). More alarming statistics present with the severity of these falls. The Agency for Health Research and Quality purports that approximately 1%, or 11,000 falls annually, end

in patient death in the hospital in-patient setting (AHRQ, 2008). Approximately 30% of inpatient falls will result in some form of injury, with more serious injuries occurring in 4% to 6% of those incidents (Hitcho, 2004).

In the discussion of falls, an important distinction to contemplate is the difference between assisted and unassisted falls. While injuries associated with falls are an important measure of patient care and safety, the rate of unassisted falls can enlighten further regarding the efficacy and quality of nursing care provided (Staggs, 2012). An assisted fall describes a patient who, during their fall, is aided by a hospital staff member who attempts to break the fall in some manner, thereby mitigating the more devastating effects. By contrast, an unassisted fall occurs in the absence of such aid, and depicts a more preventable incident (Staggs, 2012). This important distinction drives the basis of this paper and seeks to understand the role of nursing workforce variables in unassisted falls.

GAPS IN LITERATURE

Although current research abounds on falls, including risk factors and predictors of falls, much of the literature focuses on elderly adults in community or long-term care facilities (Hitcho, 2004, p. 732). Less focus is present regarding inpatient falls in acute-care hospitals and even less literature has focused on nursing variables related to assisted and unassisted falls.

PURPOSE

The Institute of Medicine released their annual report, *The Future of Nursing: Leading Change, Advancing Health*, wherein they detailed a current movement for 80% of the nursing workforce to attain BSN education by the year 2020 (Institute of Medicine [IOM],

2010). Although current research exists on nurse staffing levels and their association with fall rates, the level of education attained by a nurse and its association with percent of unassisted falls has not been well-established. Level of education remains an important consideration in determining the reasoning behind unassisted falls. With BSN nurses gaining additional training and coursework not present in ADN or LPN programs, such as professionalism, quality improvement, and leadership, it was a goal of the study to determine whether this additional knowledge would translate into a better understanding and recognition of fall risk factors through honed critical thinking skills. Therefore, the primary purpose of this study was to examine a relationship between three nursing workforce variables (RN hours per patient day, non-RN hours per patient day, and percent of BSN-prepared staff) and the percent of unassisted falls at unit-level in acute-care hospital units.

THEORETICAL FRAMEWORK

The Donabedian conceptual model of healthcare quality was used as a framework in our study to examine structure and outcomes. In this model, structural variables denote the context in which care is delivered, such as healthcare institutions, facilities, and staff, whereas outcome variables describe the effect on the studied population. Specifically, in our study, total staffing hours and RN level of education represented the structural variables, while the outcome is represented by the percent of falls.

METHODS

DESIGN

This cross-sectional, quantitative secondary analysis intended to examine existing gaps in the literature. We examined three unit-level workforce variables for potential associations with the percent of falls assisted: RN staffing, non-RN staffing, and percent of baccalaureate-trained RNs.

SAMPLE

Monthly, unit-level data was obtained from the National Database for Nursing Quality Indicators (NDNQI) for the year 2012. The NDNQI collects nursing-related data from over 1,900 participating U.S. hospitals, representing approximately one-third of all U.S. hospitals and a diverse array of academic institutions, teaching hospitals, and community (non-teaching) hospitals. Since reporting to the NDNQI is voluntary, the sample was not considered random, nor is it necessarily representative of the population of U.S. hospitals in general. The sample was limited to medical, surgical, combined medical/surgical, and rehabilitation units. Unit-months with missing data on staffing or falls were excluded. In total, complete data were available from 6,786 units.

ANALYSIS

Percent of assisted falls were computed for medical, surgical, medical/surgical and rehab units. We aggregated the data across months for each unit to compute annual RN staff hours per patient day, Non-RN staff hours per patient day, and Percent of staff with BSN education. For graphing purposes, we converted these to decile scores based on where

each unit ranked in relation to the other units of its type. The dependent variable measured was the percent of falls assisted on each unit for the year.

We computed Spearman correlations to assess and test the strength of association between each of the three predictor variables and the percent of falls assisted for each unit type.

RESULTS

Associations between percent of falls assisted and the three predictor variables varied by unit type. For RN staffing, a weak, positive relationship was shown for all four unit types in a general linear fashion (see Figure 1). For Non-RN staffing, a weak, positive relationship was shown on surgical and medical/surgical units; however, rehab and medical units showed variation with no overall relationship noted (see Figure 2). For percent BSN staffing, no clear association could be drawn except for a weak, negative relationship shown on rehab units.

Spearman correlations are shown in Table 1. Although several correlations were significant at the $\alpha=.01$ level, the correlations were weak, indicating small effects.

TABLE 1 SPEARMAN CORRELATIONS BETWEEN PREDICTOR VARIABLES AND PERCENT OF FALLS ASSISTED.

Unit type	RN hours per patient day (RNHPPD)	Non-RN hours per patient day (Non-RNHPPD)	%BSN
Medical	0.21*	0.04	0.02
Surgical	0.20*	0.09	0.03
Medical-surgical	0.17*	0.09*	0.07
Rehabilitation	0.27*	0.05	-0.09

* p-value < 0.01

FIGURES

Figure 1 RNHPPD Decile

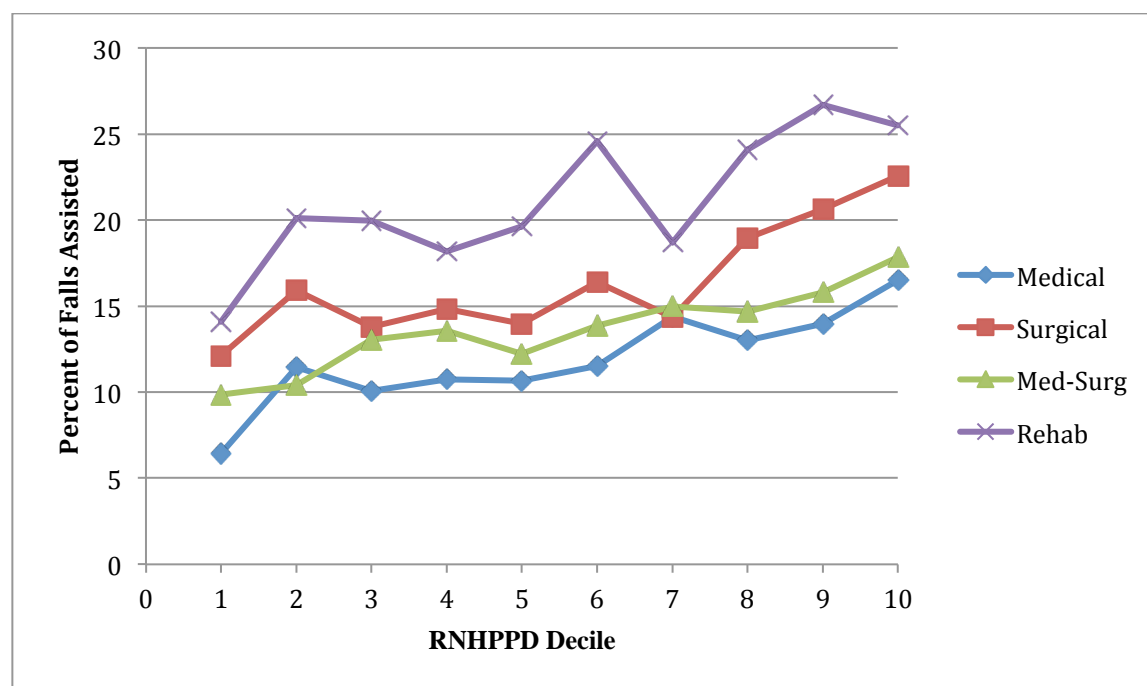


Figure 2 Non-RNHPPD Decile

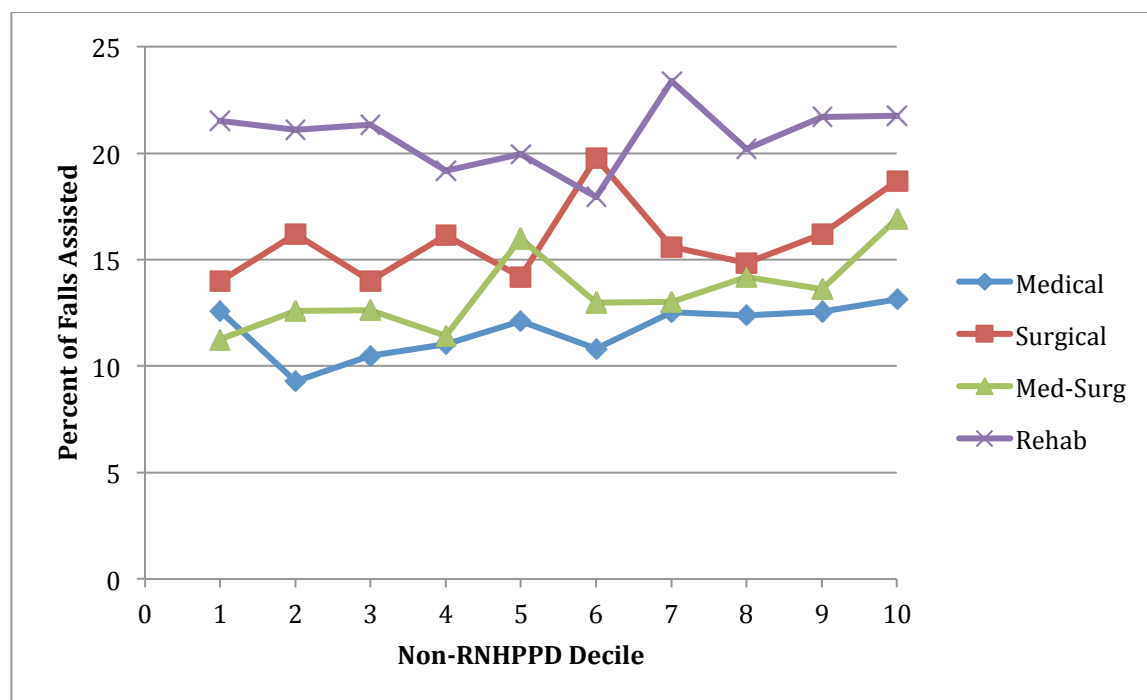
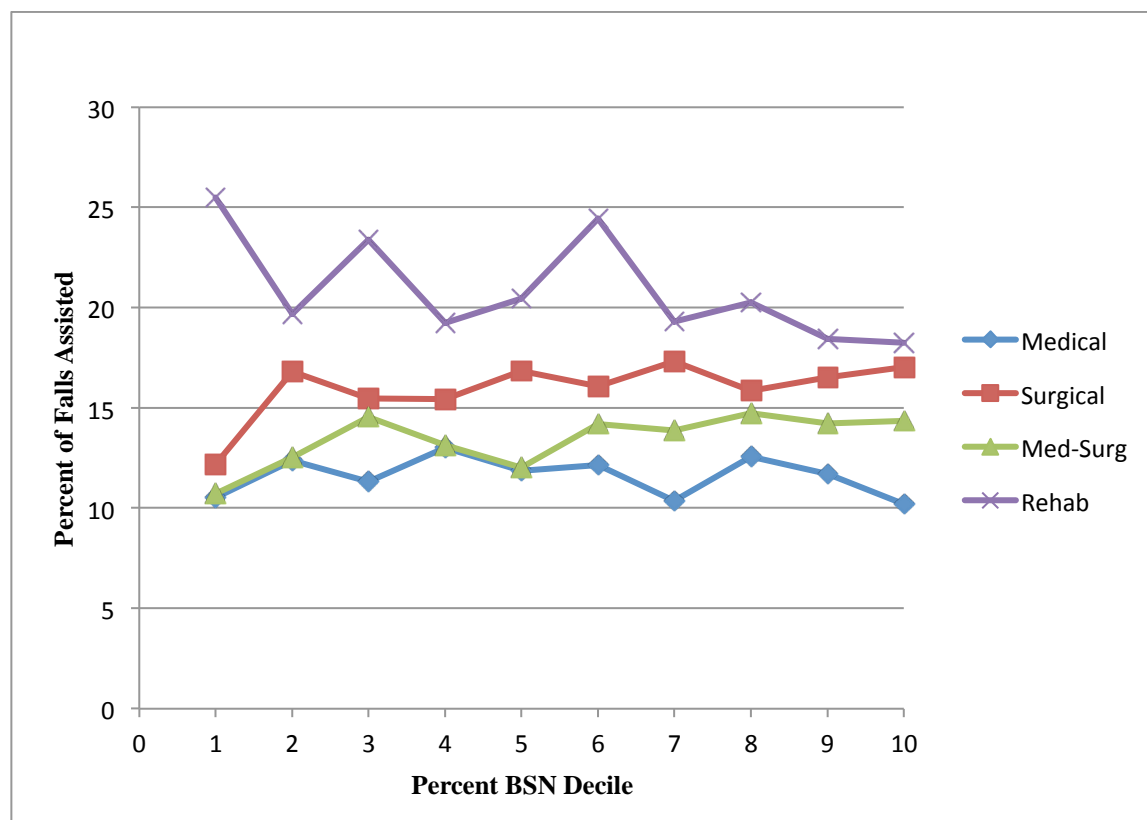


Figure 3 Percent BSN Decile



DISCUSSION

Nurse staffing level and staffing characteristics have been studied in previous research and determined to be important factors in rates of falls (Staggs, 2012). The results of this study support the assertion that at least one workforce variable, RN staffing, may also be important in understanding and preventing unassisted falls as well. The unassisted fall rate does not show an association in relation to non-RN staffing hours; however, a general linear association is noticed in relation to RN staffing hours. No such association can be ascertained in relation to BSN staffing and percent of unassisted falls. Several potential limitations were found to exist within this study. As mentioned earlier, the sample was not random or representative of the general population of U.S. hospitals; therefore, the difference among acute-care units in NDNQI and non-NDNQI hospitals may be significant. Another limitation concerns the absence of a control variable for individual patient characteristics related to risk of falling, such as comorbidities, impaired gait, and polypharmacy.

Current research shows that assisted falls are less likely to result in patient injury in comparison to unassisted falls. Preventing unassisted falls on the units remains a way to improve patient outcomes, decrease the length of hospital stays, and reduce injuries. According to our findings, bolstering the numbers of RN staffing may be a way to achieve this. However, further research is necessary in order to determine the association that level of education has with unassisted falls.

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SATISFACTION WITH END-OF-LIFE CARE AND COMMUNICATION:
RELATIONSHIPS BETWEEN FAMILY/RESIDENTS AND STAFF
PERSPECTIVES

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ABSTRACT

Families are increasingly relying on nursing homes as the place where the resident receives end-of-life (EOL) care. Improving the quality of the EOL experience in nursing homes has become a national focus. Past studies have examined EOL care from either the family/resident or staff perspective, but few have integrated the two perspectives. Using Unruh and Wan's (2004) expanded structure, process, and outcomes framework, the study proposes to explore the relationship of satisfaction with EOL care and communication between families of deceased residents and nursing homes staff.

The study is a descriptive, secondary data analysis from a larger study examining EOL care in nursing homes. Participants were families of deceased residents ($N=1,282$) and nursing home direct care staff ($N=2,962$). Family members of deceased residents provided information on *satisfaction with communication* (1-item), *satisfaction with care* (6-items), and *care focused on the individual* (6-items). Staff completed surveys on *satisfaction with communication* (3-items), *satisfaction with EOL care* (8-items), and *attitude toward death* (3-items). Data were aggregated to the facility level ($N=85$) to integrate staff and family data for analysis using Pearson correlations (r).

Family satisfaction with care was highly correlated with care focused on the individual resident ($r=.78$). Staff satisfaction with communication was moderately correlated with staff satisfaction with EOL care ($r=.39$). Staff satisfaction with communication was moderately correlated with family satisfaction with communication ($r=.31$), family satisfaction with care ($r=.32$) and care focused on the individual ($r=.27$).

Individualized care focused on the resident is necessary for increasing family satisfaction. Better communication between staff and families can enhance the quality and satisfaction with EOL care. Future development of EOL care interventions should include a comprehensive evaluation that integrates both perspectives from staff and families of residents.

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INTRODUCTION

Families are increasingly relying on nursing homes as the place where the resident receives end-of-life (EOL) care; past studies have reported that 35 of every 100 residents will die in the nursing home (Jackson et al., 2012). However, many nursing homes are currently lacking in quality EOL care. Many nursing homes offer little staff education regarding EOL care, poor transitions to palliative care, and focus primarily on task-based care. In light of this knowledge improving the quality of the EOL experience in nursing homes has become a national focus.

Past studies have examined EOL care from either the family or resident perspective or from the staff perspective, but few have integrated the two perspectives. The purpose of this study is to investigate staff and family member perspectives regarding end-of-life care and communication in nursing homes by examining aggregated data collected from Midwestern nursing homes. If strong correlations are found it would allow staff member data to serve as a proxy for family member data, reducing the need to collect data from family members that is costly and resource intensive in future studies. Strong correlations would also provide direction for interventions aimed at improving EOL care in nursing homes.

The following four research questions will be explored: (1) Is there a relationship between family members' perceptions of resident-focused care, their satisfaction with communication and their satisfaction with EOL care? (2) Is there a relationship between staff members' satisfaction with communication, satisfaction with EOL care, and attitude toward death? (3) Is there a relationship between family members' satisfaction with EOL care and staffs' perceptions of EOL care? (4) Is there a relationship between family members' satisfaction with communication and staffs' satisfaction with communication?

BACKGROUND

Families report higher satisfaction with EOL care when providers show concern and compassion, openly communicate about impending death, and communicate well with other staff members (Jackson et al., 2012, Thompson, Menec, Chochinov, & McClement, 2008). Satisfaction among the family members is related to the belief that the staff cares, that staff are present, and there is continuity of care (Jackson et al., 2012). Residents also

report individual, personalized care as another factor leading to increased satisfaction (Forbes-Thompson & Gessert, 2005). However, many family members feel that there is a lack of realistic communication, or “irrational optimism” from the staff regarding the resident’s impending death, and some families report feeling misinformed about EOL care measures (Jackson et al., 2012). Decreased satisfaction also has been associated with care that focuses solely on physical needs and ignores the resident’s psychosocial needs (Forbes-Thompson & Gessert, 2005).

Some of the problems reported by families may be due to a lack of clear palliative care policies and lack of EOL education among staff (Jackson et al., 2012). Studies have identified that staff feel it is difficult to balance the needs of the residents and the requirements of regulations that must be followed within the nursing home setting (Waldrop & Nyquist, 2011). Staff also report difficulty identifying patients that are terminally ill (Forbes, 2001), making it difficult to know when to initiate palliative care and EOL discussions with the resident and/or family members. This is compounded by the fact that most of the staff that provide direct care to residents are unlicensed personnel (Certified Nursing Assistants) who have not had the EOL training. Other barriers to EOL care include staff reports of feeling uncomfortable with residents who are dying and initiating discussions about death. Additionally high patient to staff ratios prevent staff from spending time that is necessary caring for the resident’s psychosocial needs. Thus, interventions that can increase satisfaction with the EOL experience from both the family and the staff’s perspectives need to be explored and tested.

THEORETICAL FRAMEWORK

Unruh and Wan's (2004) expanded structure, process and outcomes framework was used to design the larger study from which the data were collected. This study focuses on those aspects of the model related to the processes of care that staff provide (satisfaction with communication and EOL care, and attitude toward death) and the outcomes experienced by the resident and/or family (resident/family centered care and satisfaction with care and communication).

METHODS

DESIGN

This study used a secondary data analysis using a correlational design. Data collected as part of a larger study (Thompson, Gajewski, Bott, & Tilden, 2013) examining the quality of EOL care in nursing homes ($N = 85$) were used for this research.

SETTING AND SAMPLE

The original study selected 85 urban and rural nursing homes across Nebraska and Iowa. Data were collected from families of deceased residents ($N=1,282$) and direct care staff members ($N=2,247$). Residents were predominately white (98.6%) and female (67.7%), and most were over 85 years of age (64.2%). Similarly, family members were predominately white (98.9%) and female (70.9%). More of an age variation was seen among family members, but 56.5% were under the age of 65. Family and resident characteristics are outlined in Table 1.

Direct care staff members were defined as assistant directors of nursing (1.3%), shift supervisors (4.2%), Minimum Data Set (MDS) coordinators (2.6%), staff nurses (registered nurses [RNs] and licensed practical nurses [LPNs], 2.6%), certified nurse assistants (CNAs, 51.8%), and certified medication aides (CMAs, 17.0%). Staff members were predominately 25-44 (41.4%) and 45-64 (36.5%) years of age. Most were white (79.2%) and female (94.1%). Only 7.4% of staff members held a bachelor's degree. Many had been working at their current job for 1-5 years (35.8%), and some had been there less than 1 year (13.2%). Table 2 outlines the staff member characteristics.

MEASURES

Teno, Casey, Welch, & Edgman-Levitan (2001) developed the scales and items used to measure family member perceptions of care. *Care focused on the individual* is a six-item scale that asks family members if the resident's individual needs were met on a scale that ranged from zero to three (never = 0, sometimes = 1, usually = 2, and always = 3). Response options were recoded so never, sometimes and usually were scored as no (0) and always was recoded to yes (1). The coefficient alpha for this scale was 0.87. The *satisfaction with care* scale is a six-item scale ranking satisfaction on a scale that ranged from zero to -10. The scale coefficient alpha was 0.95. Scores were summed across the items for each of the scales respectively and higher score represented better care focused on the individual (*range* = 0 to 6; *midpoint* = 3) and greater satisfaction with care (*range* = 0 to 60; *midpoint* = 30). A single item (i.e., How well did the staff communicate with the resident and the family about the illness and the likely outcomes of care?), taken from the *satisfaction with care* scale, was used to determine family satisfaction with communication. Higher scores represent better communication from the staff (*range* = 0 to 10; *midpoint* = 5).

Staff members' *satisfaction with communication* was measured using a three-item scale ranking satisfaction from one to six (very dissatisfied = 1, dissatisfied=2, slightly dissatisfied=3, slightly satisfied=4, satisfied=5, or very satisfied=6) (Shortell, Rousseau, Gillies, Devers, & Simons, 1991, Scott-Cawiezell et al., 2004). Scores were averaged across the three items for a *range* of 1 to 6 with a *midpoint* of 3.5; the reliability of the measure was $\alpha = 0.87$. *Satisfaction with care* (8 items) and *attitudes toward dying* (3 items) were measured using response options ranging from one to four (never = 1, sometimes = 2, often = 3, and always = 4) (Forbes-Thompson, Gajewski, Scott-Cawiezell, & Dunton, 2006). Scores were created by averaging across the number of items so the *range* was one to four with a *midpoint* of 2.5. Coefficient alphas for the two scales were 0.63 and 0.81, respectively. Higher scores represent greater satisfaction with care and communication and more positive attitudes towards residents' deaths.

PROCEDURES

Staff at Midwestern long-term care facilities completed surveys regarding education, communication, teamwork, leadership, and palliative care in group settings. Family members were surveyed by phone approximately six weeks after the resident's death. For this study, de-identified data from nursing home staff and family members regarding their perceptions of care were aggregated to the facility level in order to correlate data across the nursing homes. A Midwestern academic medical center Institutional Review Board reviewed the study and made a determination of non-human subject research because all data were de-identified for this study.

DATA ANALYSIS

Scale scores were aggregated to the facility level for each nursing home ($N=85$). IBM Statistics SPSS Version 20.0 was used first to examine frequencies and descriptives, and to calculate Pearson correlations (r) among the variables of interest. The p value was set at 0.05.

RESULTS

DESCRIPTIVES

Overall both family members and staff members reported scores above the midpoint on all scales and measures. For family members this represented higher satisfaction with care focused on individual, satisfaction with EOL care, and satisfaction with communication. Staff members also reported higher satisfaction with EOL care and communication as well as a more positive attitude toward death. Mean scores and standard deviations for each of the scales can be found in Table 3.

CORRELATIONS

Family Members. Family member variables were correlated to determine if there is a relationship between satisfaction with communication, satisfaction with care, and care focused on the individual. Strong, positive correlations ($r = 0.72$ to 0.89) were found among all three variables (See Table 4).

Staff Members. Correlations within staff member variables (i.e., communication, satisfaction with EOL care, and attitudes toward dying) were examined. A moderate correlation ($r = 0.39$) was found between satisfaction with EOL care and satisfaction with

communication; a small positive correlation ($r=0.24$) was found between satisfaction with EOL care and attitudes toward dying; no correlation was found between attitudes toward dying and satisfaction with communication (see Table 4).

Staff Members with Family Members. Moderate correlations were found between family satisfaction with communication and staff satisfaction with communication ($r = .31$), and family satisfaction with care and staff satisfaction with communication ($r = .32$). Small correlations were found between family perceptions of care focused on the individual and staff satisfaction with communication ($r = 0.27$), and family perceptions of care focused on the individual and staff satisfaction with EOL care ($r=0.24$). No significant correlations were found among the other variables (see Table 5).

DISCUSSION

Findings from this study suggest that families that are highly satisfied with communication also would be more likely to be satisfied with overall care and care that is focused on the individual needs of the resident. Although there were small to moderate correlations between staff satisfaction with communication and family satisfaction with communication, the associations were not as strong as expected. This may be representative of a possible disconnect between families and staff regarding what is important to communicate and the quality of care that is being provided. One possibility is that staff may feel less satisfied with the care they are able to provide but this may not affect the quality of care from the family's perspective. This may be due to conflicts between resident needs and the time constraints to attend to those needs that is created by lack of staffing or other regulations (Waldrop & Nyquist, 2011) that staff perceive as

impediments to care. In comparison to the other scales in the study, staff reported satisfaction with EOL care at the about the midpoint of the scale, while satisfaction with communication was much higher. Although it does not indicate that staff were dissatisfied with the care, they were not highly satisfied with the EOL care they provided.

Another factor impacting the quality of end-of-life care is the very low percentage of direct care staff with bachelor's degrees. From this one can surmise that the majority of direct care providers have little formal knowledge or training in EOL care principles and lack the necessary competencies needed to initiate conversations about EOL care desires and wishes, appropriately assess the resident's needs, and provide the care needed to meet those needs. With this in mind it is important to design interventions focusing on on-the-job training to increase staff comfort in addressing EOL care. High turnover in nursing homes also require the need to train staff during orientation, as well as provide follow-up training at regular intervals.

Another interesting finding was that staff's *attitude toward dying* scores only had low correlations with staff's satisfaction with communication and EOL care, and essentially no correlation with family satisfaction with EOL care and communication and care focused on the individual. On average staff's scores on the *attitude toward dying* scale were well above the midpoint of the scale indicating that staff had a positive attitude toward dying in the nursing facilities that participated in this study. One would anticipate that staff who reported that they "did not feel awkward and were comfortable when spending time with dying residents" would also report that they were more satisfied with EOL care and communication. However, one's personal comfort with death and dying does not

necessarily translate to higher satisfaction with the communication process or the quality of the EOL care that is provided in the nursing home. In future studies it may be useful to explore this further to see if there are other reasons that this relationship did not surface.

Lastly, by aggregating variables to the facility level there may be a loss in variability across response options because staff responses and family member responses are averaged to represent how all staff and all families perceive each variable of interest within the facility. Depending upon how representative the family members and staff members were of the nursing home and the limited variability through aggregation, the true relationships that may be present (either positive or negative) may be masked. Further research is necessary to validate the findings of this study as well as comparing other variable such as across states or between urban and rural nursing homes.

CONCLUSIONS

Strong correlations within all family member variables were found. Correlations within staff member variables were not as consistent and were not as highly correlated. Variables that were moderately positively correlated between staff and family members were satisfaction with communication and satisfaction with care. Family members positive perceptions with care focused on the individual resident had some positive correlation with staff satisfaction with EOL care and satisfaction with communication.

IMPLICATIONS

Findings from this study support better quality of care being achieved by integrating both perspectives from family members and staff members in designing interventions to improve quality EOL care in nursing homes. Findings do support that staff satisfaction with

communication is important to family member's perceptions of quality of care. While correlations may not have been strong enough to support using staff satisfaction as a proxy for family satisfaction, this study did show the impact of communication on EOL care. In the future EOL care interventions focusing on improving communication among staff and families need to be developed and tested to increase the quality of EOL care that residents receive in nursing homes.

LIMITATIONS

The findings from this study may not be able to be generalized to all nursing homes. Although nursing home residents are predominantly female, there may be other nursing homes that have a higher proportion of other races and ethnicities, which would have very different response based on cultural beliefs and expectations. Additionally, these data were collected from only two midwestern states. In order for these findings to be applied to broader populations this study must be replicated in multiple settings with a wider range of participants.

TABLE 1 FAMILY MEMBER AND RESIDENT CHARACTERISTICS (N=1,282)

Characteristic	Category	Family (%)	Resident (%)
Age	< 65 years	56.5	1.3
	65-74 years	27.0	6.4
	75-84 years	12.4	28.2
	> 85 years	4.1	64.2
Gender	Female	70.9	67.7
Race	Caucasian	98.9	98.6
Employed	Yes	54.8	N/A
Religion	Protestant	74.2	74.5
	Catholic	20.1	18.7

TABLE 2 STAFF MEMBER CHARACTERISTICS (N=2,247)

Staff		
Characteristic	Category	%
Age	< 24 years	18.6
	25-44 years	41.4
	45-64 years	36.5
	≥ 65 years	3.6
Gender	Female	94.1
Education	≤ High School or GED	59.6
	Associates Degree	33.1
	Bachelors or Higher	7.4
Race	Caucasian	79.2
Years at Current Job	< 1 year	13.2
	1-5 years	35.8
	6-10 years	17.8
	11-15 years	11.2
	16-20 years	8.5
	≥ 20 years	13.4

TABLE 3 MEASURE DESCRIPTIVES FROM FAMILY AND STAFF MEMBERS (N=85)

	Family Members	Staff Members
	<i>M(SD)</i> <i>Midpoint</i>	<i>M(SD)</i> <i>Midpoint</i>
Care Focused on the Individual	4.16 (0.64) 3	N/A
Satisfaction with EOL Care	52.44 (3.47) 30	2.57 (0.18) 2.5
Satisfaction with Communication	8.50 (0.64) 5	4.51 (0.33) 3.5
Attitude Toward Death	N/A	3.64 (0.13) 2.5

TABLE 4 CORRELATIONS BETWEEN SATISFACTION VARIABLES WITHIN FAMILY MEMBERS AND STAFF MEMBERS.

	A. (<i>r</i>)	B. (<i>r</i>)	C. (<i>r</i>)	D. (<i>r</i>)	E. (<i>r</i>)	F. (<i>r</i>)
	Family members					
A. Satisfaction with Communication	-					
B. Satisfaction with Care	0.89**	-				
C. Care Focused on the Individual	0.72**	0.78**	-			
	Staff members					
D. Satisfaction with Communication				-		
E. Satisfaction with EOL Care				0.39**	-	
F. Attitude Toward Dying				0.19	0.24*	-

* $p \leq .05$

** $p \leq .01$

TABLE 5 CORRELATIONS AMONG SATISFACTION VARIABLES BETWEEN STAFF MEMBERS AND FAMILY MEMBERS

		Family Members		
		Satisfaction with Communication (<i>r</i>)	Satisfaction with Care (<i>r</i>)	Care Focused on the Individual (<i>r</i>)
Staff Members	Satisfaction with Communication	0.31**	0.315**	0.27*
	Satisfaction with EOL Care	0.13	0.16	0.24*
	Attitude Toward Dying	0.01	0.04	0.00

* $p \leq .05$

** $p \leq .01$

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SEDENTARY TIME IN MIDLIFE WOMEN

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ABSTRACT

Physical inactivity contributes to chronic illness and is an important factor in chronic illness prevention. Minimal consideration has been given to sedentary time independent of physical activity (PA) levels in reducing health risks. The purpose of this study was to assess sedentary time independently of light, moderate and vigorous PA levels in midlife women. A small convenience sample of 24 midlife women ages 47-55 consisting of faculty, staff, and students at a large Mid-western university wore an accelerometer for seven consecutive days to assess physical activity levels. Findings indicated that the sample was sedentary for more than eight hours a day (μ 720 min/day; SD 93). With this small convenience sample of women, the results must be analyzed carefully and may not be generalizable beyond this sample. Assessing sedentary time along with other metabolic factors that increase the risk for cardiovascular disease and Type 2 diabetes will lead to more effective interventions to improve health outcomes.

INTRODUCTION

Considerable information has been published about the health and wellness benefits of physical activity. The United States Department of Health and Human Services distributed physical activity recommendations detailing the frequency, duration and intensity of physical activity for individuals. Recommendations for adults include, 150 minutes per week of moderate or greater intensity or 75 minutes of vigorous-intensity physical activity most days of the week (U.S. Department of Health, 2008, p. vii) to prevent chronic conditions. The physical activity guidelines are endorsed by the American Heart Association, the American College of Cardiology, and the American Diabetes Association. These recommendations apply to midlife women (ages 47-55), the focus of the current study, who have increasing cardiovascular disease risk during the transition to menopause (American Heart Association, 2013).

It is important to note that there are no guidelines regarding the duration of sedentary time each day. Research is underway in this area; however the

information and knowledge has not reached the level of being incorporated into national or international guidelines. The daily lives of the majority of individuals in modern society involve sitting rather than moving around. Means of transportation, work, and home life include low energy activities for most individuals. Sedentary behaviors such as watching television, computer use, or sitting in an automobile typically are in the energy expenditure range of 1.0-1.5 metabolic equivalents (METs). For comparison, vigorous activity is typically >6 METs (Tudor-Locke C, Washington TL, Ainsworth BE, Troiano RP., 2009). The purpose of this study was to assess sedentary time independently of light, moderate and vigorous PA levels in midlife women.

LITERATURE REVIEW

Sedentary behavior has been a recent topic of interest for researchers. “Too much sitting – a health hazard” (Dunstan, Howard, Healy, & Owen, 2012) represents this concept and state that sedentary behavior is not a recent phenomenon. Physicians as early as the 17th century noted that there was a relationship between sedentary time and deleterious health consequences (Dunstan et al., 2012, p. 370). M.T. Hamilton, D. G. Hamilton, and Zderic (2007) indicated that little has been determined about the cellular signals, physiological responses, and disease outcomes caused by prolonged sitting and other sedentary behaviors (p. 2655). Some studies have shown specific relationships between sedentary time and weight gain, increases in plasma glucose and abnormal glucose tolerance, cardiovascular disease, as well as cancer (Thorp et. al. 2011). Many of these adverse health consequences can potentially be prevented with physical activity and a reduction in sedentary time throughout the lifespan.

Several studies have researched the correlation between television viewing (sedentary activity) and cardiometabolic health. In the Australian Diabetes, Obesity and Lifestyle Study (AusDiab) conducted in 1999-2000, findings suggested that among adults without known diabetes, self-reported TV time was positively associated with undiagnosed abnormal glucose metabolism (Dunstan, Salmon, & Owen, 2004). AusDiab (2004) also reported that high TV viewing time was associated with overweight and obesity than lack of leisure time physical activity (Cameron et al. 2003).

Dunstan et al., (2012) calls attention to prolonged unbroken sitting as a contributor to poor health. In the AusDiab study, it was discovered that there were significant beneficial associations observed with frequent breaks in sedentary time (Dustan et al., 2012). Physiologically, it has been suggested that the loss of local contractile stimulation induced through sitting leads to both the suppression of skeletal muscle lipoprotein lipase (LPL) activity, which is necessary for triglyceride uptake and high-density lipoprotein (HDL) cholesterol production, and reduced glucose uptake (Bey & Hamilton, 2003). However, when an individual takes breaks between long periods of sitting, the suppression of skeletal LPL decreases and there are improved mechanisms for glucose uptake.

To reduce time spent sedentary, some literature recommends increasing time spent in non-exercise activity thermogenesis (NEAT). NEAT is described as an activity that is not sleeping, eating, or structured sports-like physical activity (Levine, 2002). NEAT ranges from daily walking into work to agricultural tasks, like gardening, as well as standing, stretching, turning, bending, or fidgeting. A deficiency in NEAT will result in less movement and consequently less daily caloric expenditure. "Neat is the most

variable component of the total energy expenditure, typically ranging from approximately 300 to 2,000 kilocalories per day when comparing the average of the estimate for the lowest and highest quartiles in total energy expenditure” (Brooks, Butte, Rand, Flatt, & Caballero, 2004). By increasing NEAT, time spent sedentary can be interrupted by different types of caloric expenditure. It is important to note that meeting physical activity recommendations may not affect NEAT deficiency, since nonexercise activity takes place over a far greater time span every day and continually interrupts sedentary time.

METHODS

SAMPLE AND SETTING

In this descriptive study, a convenience sample ($n=23$) was recruited via email broadcast. This sample included metabolically healthy (no diagnosed diabetes) midlife women, ages 47-55 years, from faculty, staff and students at a large academic medical center in the Midwest. This sample also reported that they did not engage in regular physical activity.

Demographics were assessed and are reported in Table 1. This sample was on average 50 (SD 2.4) years old and had a mean body mass index of 25 (SD 4.4). The majority of the sample was caucasian and married with all of them having at least some college education.

TABLE 1 DEMOGRAPHIC INFORMATION

Demographic Variables	Participant Responses (N=25)
Age	M=48 (47-50) years
Race	
Caucasian	24 (96%)
African American	1 (4%)
Ethnicity	
Not Hispanic or Latino	25 (100%)
Marital Status	
Single	6 (24%)
Married	18 (72%)
No Response	1 (4%)
Education	
Some College	5 (20%)
College Graduate	10 (40%)
Graduate School	10 (40%)

PROCEDURES

Each woman was given an RT3 triaxial accelerometer (Stay-Healthy, Monrovia, CA) to wear for seven consecutive days (five week days and two weekend days) with instructions to wear the monitor during waking hours except during bathing or swimming.

MEASUREMENT

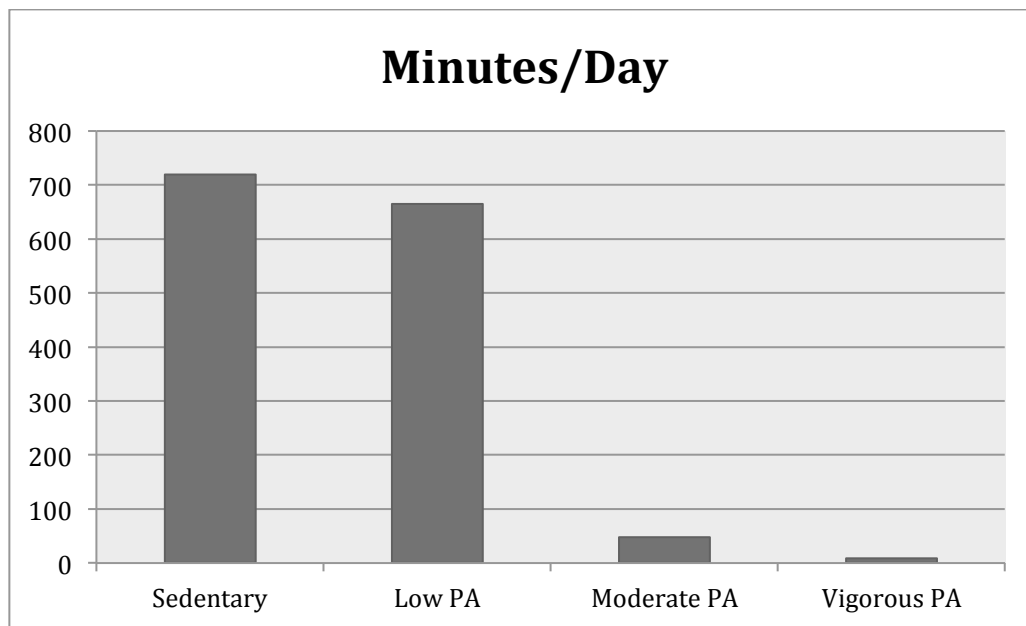
Total minutes per day for each intensity level were calculated. Intensity levels were measured based on metabolic equivalents (METs). One metabolic equivalent is the “amount of oxygen consumed while sitting at rest and is equal to 3.5 ml O₂ per kilogram body weight x minutes” (Jetté M, Sidney K, & Blümchen G., 1990, p. 1).

The accelerometer measurements included sedentary: METS=1, low intensity activity: $3 > \text{METS} > 1$, moderate activity: $6 > \text{METS} > 3$, and vigorous activity: $\text{METS} > 6$.

RESULTS

This sample of women was overweight with a mean BMI of 25 kg/m^2 . These women's body mass indices ranged from $20.7 - 38.7 \text{ kg/m}^2$. This information about the sample indicates that the risks for adverse health conditions were increased due to high BMI. The sample, on average, was sedentary for more than eight hours a day ($M=720 \text{ min/day}$; $SD 93$). Results of the samples average PA levels are demonstrated in Figure 1 in minutes per day.

FIGURE 1 RESULTS



DISCUSSION AND STUDY LIMITATIONS

Although this group of women, on average was meeting the daily recommendations for physical activity; some participants were below the recommended level, based on the research evidence to date, these women had a greater risk of morbidity and mortality than women who were sedentary for fewer hours a day. The knowledge gained from this study and future larger investigations holds promise for promoting the development of national guidelines for sedentary behavior and to allow clinicians to individualize recommendations to reduce sedentary time in midlife women. In addition, this small sample was mainly Caucasian, college-educated females, thus, the results may not be generalizable to the larger population. A larger study with greater socioeconomic, racial and ethnic diversity is needed. New and innovative technology will provide more accurate data measurement for physical activity as well.

CONCLUSIONS AND FUTURE STUDY

There are currently no recommendations addressing sedentary time. There is insufficient information about inactivity physiology to prompt new public health policies limiting sitting time and supporting prescription of nonexercise activity to reduce risk factors related to metabolic diseases (Hamilton, Hamilton, & Zedyric, 2007). Determining the mechanisms through which sedentary behavior negatively affects health will help determine which features (e.g., environment, energy expenditure, type of activity) should be prioritized in measurement (Marshall and Merchant, 2013).

Future research will add to experimental evidence underlying the negative health effects of sedentary time. There is currently insufficient information about inactivity physiology to prompt new public health policies limiting sitting time and supporting prescription of nonexercise activity to reduce risk factors related to metabolic diseases (Hamilton, Hamilton, Zedyric, 2007).

Replacing sedentary time with light or non-exercise activity throughout the day, while continuing to meet the National PA guidelines is a consideration for healthcare providers when counseling midlife women. Updating the current guidelines with recommendations to address the time spent sedentary each day will be beneficial to decrease morbidity and mortality. The ultimate goal of this research is to create healthier, more active individuals and prevent chronic illness.

DISCLOSURES:

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FACTORS THAT INFLUENCE INSURED PATIENTS' USE OF EMERGENCY DEPARTMENTS FOR PRIMARY CARE

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ABSTRACT

Background: A disturbing trend in American health care is utilization of emergency departments (EDs) for non-emergency visits. Many individuals attempt to fulfill their primary health care needs in EDs. This practice leads to \$38 billion in excess spending each year as a result of multiple return visits and poorly coordinated care. The purpose of this study is to examine the reasons that patients seek emergency care.

Methodology: A qualitative descriptive design was used in this study. Two preliminary focus groups (n=2) were conducted with a purposive sample of five participants who were identified at a family medicine clinic as super-utilizers of the ED. Data collection and analysis are ongoing in this study with a planned sample size of 6. Participants' responses to open-ended questions were audio recorded and transcribed verbatim. Through the analysis of these transcripts, preliminary categories and themes were identified from meaningful data.

Preliminary Results: The research team has developed two preliminary themes, which are challenges presented by the health care system and management of acute exacerbation of chronic disease. Within the health care system, participants discussed the inability to access care during normal clinic hours. This led to participants accessing health care in the ED. Management of acute exacerbation of chronic disease that influenced ED use included both degree of pain and perceived severity of symptoms. Participants were more likely to go to the ED if their pain levels were high or they thought their symptoms necessitated immediate medical care.

Discussion: This study provides preliminary evidence for nurses and other healthcare providers to advocate for an improved, seamless primary care system. The goal would be to decrease ED use for primary care needs, which has led to both excess spending on health care and poorly coordinated care. However, more research is necessary to further understand the needs of this population in order to design appropriate interventions.

Conclusion: Insured ED super-utilizers make their decisions to access health care based on factors associated with challenges presented by the health care system and management of acute exacerbations of chronic disease. These findings contribute to our understanding of the health care system as a whole and will be useful in guiding future practice and research initiatives.

INTRODUCTION

BACKGROUND

Emergency department (ED) overuse is a significant problem in the United States today. It is estimated that unnecessary ED visits account for \$38 billion each year (Adams, 2013).

Both insured and uninsured individuals access care through EDs for chronic health issues,

which could be treated more efficiently through a primary care provider. In order to address this inefficient use of medical resources, it is necessary to understand the factors that influence patients' use of the ED for non-emergency visits.

This study examines insured patients' perspectives regarding factors that influence their use of the ED for primary care needs. It is important to collect this qualitative data to increase researchers' and providers' understanding of the issues influencing patients' use of health care. This pilot study provides preliminary qualitative data that may be useful for improving insured patients' ability to establish and continue care at primary clinics.

REVIEW OF LITERATURE

ED usage has increased drastically in the last 45 years. In 1968, 44 million patients visited an ED. Today, that number is 134 million (Adams, 2013). Accounting for population growth, that is a 93.6% increase (US Census Bureau, 2013). A disproportionately large percentage of those individuals are super-users. These people utilize ED services more than once in any 30-day period in a 12-month period. From 1998-2009, the amount of patients classified as frequent users increased by 66% (Martin, Stokes-Buzzelli, Peltzer-Jones, & Schultz, 2010). This means that not only are more people using EDs now, but an increasingly large number of those people are using emergency services more frequently. This overuse of EDs places a huge financial burden on the health care system. Accessing health care through EDs is 2 to 5 times more expensive than using a primary care provider (PCP) (Adams, 2013). Additionally, the care provided to patients in EDs tends to be less comprehensive and coordinated. "These patients may continue to generate high utilization because they receive fragmented care in more expensive acute care settings while lacking

access to coordinated care in lower-cost primary care settings" (Mann, 2013). Despite all this, patients still continue to access health care through EDs.

Studies have sought to describe the patients that are more likely to use EDs than PCPs. Sun, Burstin, and Brennan (2003) discuss demographic predisposing factors. These include "being a single parent, single or divorced marital status, high school education or less, and income of less than \$10,000." Other precipitating factors included recent hospitalizations and high levels of psychological stress. Another study found two medical predisposing factors in their frequent visitors: psychiatric complaints and alcohol abuse (Minassian, Vilke, & Wilson, 2013). Psychiatric conditions were among the most common illnesses present in the frequent users. Psychiatric conditions coupled with alcohol abuse were also seen more often than other conditions. Mehl-Madrona (2008) suggests that many frequent ED patients have under-diagnosed psychiatric conditions. These patients often do not present with psychiatric complaints, but the underlying problem is psychiatric in nature. The initial complaints guide their care, so the causative condition may remain untreated. This leads to continual ED admissions.

Oetjen, Oetjen, Rotarius, and Liberman (2010) describe 3 primary characteristics of super-utilizers of EDs. These individuals believe their medical condition is serious enough to warrant immediate medical attention. Adams (2013) addresses this issue by stating that similar sets of symptoms early on can lead to very different conditions later on. While individuals may believe they are in the early stages of a serious condition and seek out emergency services, their initial symptoms may or may not be indicative of a condition requiring emergency medical attention. Portions of ED users contact their PCP before going to the ED. However, more than half are told to go to the ED because the clinic is too busy to

handle them. Another portion of ED users wait until after clinic hours to seek attention for their needs. If no clinics are open, they must use the ED by default.

A 2013 study concluded that the top 1% of ED users have both sufficient health insurance, as well as adequate access to a PCP. These most frequent of users have multiple chronic comorbidities. They also have higher rates of psychiatric conditions compared to less frequent users (Miller, Brauer, Rao, Wickenheiser, Dev, Omino, & Stokes-Buzzelli 2013). Relying on EDs to provide complete care for complex cases is an ineffective approach to health care.

Frequent ED users experience poorer outcomes. They are more likely to be admitted to hospitals and are also more likely to return to the ED. They also express lower levels of satisfaction with their care (Sun, Burstin, & Troyen, 2003). This can, in part, be attributed to the fact that the ED staff cannot provide the level of comprehensive and coordinated care that a PCP can provide. Patients with intricate comorbidities greatly benefit from the resources and managed care that is available with a PCP. Additionally, frequent users may be recognized and even avoided by ED physicians (Mehl-Madrone, 2008). "Physicians feel burned out from treating patients in this population... and feel less empathy for them" (Miller et al., 2013). This could lead to biased care and even poorer outcomes than for the individuals who are not recognized as frequent users. A Cleveland hospital began a program to combat this mentality. When Medicaid-insured individuals are recognized as ED super-utilizers, they are paired with a care coordinator. This care coordinator provides patients with resources such as a PCP, specialists according to their needs, and a detailed care plan. The implementation of this system reduced frequent visitors' ED utilization by

39% in one year ("Taking a new track," 2013). This allows ED services to be reallocated back to truly urgent cases.

METHODS

The purpose of this ongoing study is to examine reasons patients seek emergency care for primary care needs. Qualitative descriptive method guided this study. Institutional Review Board approval was obtained prior to interviewing participants.

SAMPLE

A purposive sample of participants was identified by a family medicine clinic. Criteria for participation included 18 years of age or older; insured publicly or privately; ED super-utilizer. Super-utilizers are individuals who use the ED more than once in any 30-day period in any 12-month period. Eligible patients were contacted via telephone by a clinic RN coordinator and informed of the purpose of the study. Student assistants then contacted interested patients via telephone and invited them to participate in focus group interviews. Focus group interviews were scheduled with 2-3 participants in each group. The participants that attended focus groups were provided with monetary compensation. Participant demographics included 60% Caucasian females and two African Americans. The age range of participants was 20-56, with a mean age of 46.

DATA COLLECTION

Two of the planned focus groups (n=2) were conducted in a private room in the evening on a large, urban medical center campus. Total attendance of subjects at the focus groups equaled 5 subjects who met the study criteria. The groups met for 45-60 minute sessions

and were audio-recorded. The research team provided informed consent and collected demographic information from each subject. One investigator facilitated the focus group, while one recorded the participants' responses. Interviews were semi-structured with pre-determined, open-ended questions, however participants were able to speak about issues not directly related to the questions. See Appendix A for question list from focused interviews.

DATA ANALYSIS

Preliminary qualitative data was collected during the interviews. Data is still being collected. A professional transcriptionist transcribed audio recordings verbatim and cleaned transcriptions to remove personal identifiers. Notes taken during focus group sessions were reviewed to identify preliminary meaningful data. The research team read through the transcripts while listening to audio recordings. Transcripts were read again to look for meaningful data with the research question in mind. Common phrases that related to the research question were highlighted. The research team met to determine preliminary categories identified from the meaningful data. These categories were collapsed into preliminary themes.

RESULTS

Two themes emerged from the data analysis, which are challenges presented by the health care system and management of acute exacerbations of chronic disease.

CHALLENGES PRESENTED BY THE HEALTH CARE SYSTEM

Participants discussed the issue of transportation. If they did not have cars, they found it difficult to get a ride to a clinic during business hours. When transportation was available after family and friends returned from work, clinics were closed, which led them to use the ED to receive medical care. One participant described her inability to use public transportation because of the long walk to the bus stop. "Normally I have a cane... If I was healthy I would be okay with it, but it's a long ways for a person like me."

A common response participants shared was the difficulty to schedule an appointment in a primary care office. One participant described how she had to "wait four or five months to get an appointment" with a specific physician. This participant went on to describe how if she were to experience a medical issue during that time, she would have to use the ED for care. Another participant stated that he did not have a good relationship with his primary care physician. "I just waste my time going to see him. That's why I go to the emergency room."

MANAGEMENT OF ACUTE EXACERBATIONS OF CHRONIC DISEASE

Several participants stated that physiological factors influence their choice of seeking care in the ED, as opposed to a clinic. One participant indicated her decision to use the ED is influenced by "how severe my symptoms are, how much pain I'm in, if I know that I need medical attention right then and there." Other participants expressed similar ideas. "If it's something serious, I'll go to the ED over the clinic because it's a quick fix." When asked what type of serious symptoms would prompt an ED visit, participants stated asthma attacks and "throwing up blood." Participants expressed that these conditions could not wait to be examined in a clinic, thus inciting a trip to the ED.

UNEXPECTED FINDINGS

Participants expressed an unanticipated view of ED care. One indicated that her needs were not being met in the ED. "Go to the emergency room, they're going to give you pain medicine and send you home... Pain medicine isn't going to solve [the problem]." Another stated, "You don't always want the pain to go away. You want somebody to know what's going on with you."

DISCUSSION

The perspectives provided by participants in this study corroborate the findings of previous studies. With the cost to the health care system so great, it is imperative for health care professionals to continue research on this subject. At the most fundamental level, researchers need to make sure that the right questions are being asked. By identifying the patients' perceptions of factors that influence their ED usage, improvements can be made to systems that directly target those factors. Mintzber (2011) suggests that we need to "look to the people on the ground, not outside experts, for ideas for real improvements." This means that patients need to work collaboratively with care providers to decipher the exact reasons why EDs are so frequently used. Continued collaborative, qualitative research will provide the insight necessary to amend current health care trends and provide better access primary care to more patients.

Additionally, the views of ED care we encountered present a challenge for health care professionals. There is an opportunity to investigate ways to better meet patients' needs regarding the administration of pain medication in the ED. Further research is needed to

understand ways in which health care professionals can bridge the dichotomy between relieving patients' pain and investigating the root cause of the pain.

LIMITATIONS

The small sample size of 2 focus groups decreases the transferability of these findings to other similar populations.

CONCLUSION

This study provides initial evidence of the factors that influence ED use among insured individuals. Both the health care system and physiological factors guide the decision to access health care in the ED or in a clinic. Additionally, ED care may not always meet patients' needs. There is room for improvement with regards to the administration of pain medication in the ED. There is also a need for more accurate assessment and communication with patients to ensure appropriate interventions. Additional research on these topics will provide more substantial evidence and will guide future interventions to improve quality care and access to primary care.

APPENDIX A

Question list from focus group interviews:

- When you need health care, what do you do?
- When you need health care, where do you go?
- When you decide to go to the clinic, what are the things that help you make that decision?
- What things prevent you from getting care at a clinic?
- When you go to the ED, how do you make the decision to go there instead of your clinic?
- What are the advantages of going to the ED rather than the clinic?
- What are the disadvantages of going to the ED rather than the clinic?
- Is there anything else you would like to add that was not addressed?

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Taking a new tack, MetroHealth System welcomes super-utilizers of the ED, equips them with care coordinators. (2013). *ED Management*, 25(3), 29-31.

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CASE STUDY OF A FEASIBILITY STUDY: OLDER ADULT WITH MCI
LISTENS TO MUSIC VIA A MOBILE TABLET

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CONFLICT OF INTEREST

All authors do not have any personal or financial conflicts of interest for disclosure regarding this study.

ABSTRACT

Background: Listening to music has been reported to provide beneficial effects on the cognition and mood of older adults with cognitive impairment. Few studies have examined the feasibility of using mobile tablets to listen to preferred music in older adults with mild cognitive impairment (MCI) in community settings.

Purpose: This case study aimed to examine a participant's perceptions of (1) a preferred music genre on her mood and (2) using a mobile tablet to listen to her preferred music.

Theoretical Framework: Psychoneuroimmunology theory supports that the use of a music intervention can stimulate a neurological-immunological cascade which can produce psychological change.

Methods: This descriptive case study collected data from one older adult with MCI living at home. The study participant used a mobile tablet to listen to her preferred music genre for a week. Quantitative data were collected using cognitive tests and a self-report questionnaire of depression. A semi-structured interview was used to assess qualitative data regarding the participant's perception of music on mood and ability to utilize mobile tablet technology.

Results: A 75-year old woman expressed her concern about age-appropriate mild memory decline (MMSE = 29 and CDR scored between 0 and 0.5). She was functionally independent and had a lower depressive score (GDS = 5). This case identified that the participant's preferred music genre of country music had a positive effect on the participant's mood. She reported that using a mobile tablet was frustrating, expensive to purchase, and difficult to learn. However, she stated that it was interesting to learn and a feasible mode to listen to music.

Conclusions: Listening to a preferred music genre has the potential to improve the participant's mood. However, future research should be conducted with a larger cohort using experimental design. Although utilizing mobile tablet technologies is initially frustrating and difficult, proper training may enable older adults with MCI to use music interventions in home settings.

INTRODUCTION

Cognitive decline is a significant challenge for the aging population and United States (U.S.) healthcare providers. Mild cognitive impairment (MCI) is one of the most prevalent forms of cognitive decline, with 28% of community dwelling older adults being diagnosed with it (Alzheimer's Association, 2012; Lopez et al., 2003). MCI is a noticeable decline in cognitive abilities associated with short term memory loss (Alzheimer's Association, 2012; Lopez et al., 2003; Winblad et al., 2004), yet it is not severe enough to interfere with

activities of daily living (Alzheimer's Association, 2012). MCI is often thought of as a precursor to Alzheimer's disease due to its 10-13% annual conversion rate (Farias, Mungas, Reed, Harvey, & DeCarli, 2006; Geda et al., 2004; Peterson et al., 1999). Thus, early interventions to manage cognitive decline and relevant comorbid conditions will be critically important to stabilize further cognitive decline in order to promote healthy aging and independent living (Alzheimer's Association, 2012).

People with cognitive decline often suffer from depression (Chu et al., 2013; Richard et al., 2013). The prevalence of depressive symptoms in adults with MCI ranges from 3 - 63% depending on study settings (hospital-based versus population-based samples) (Richard et al., 2013). However, depression is not necessarily considered a predisposing risk factor for developing MCI (Richard et al., 2013), but a comorbid condition. A previous study found that depression accompanies cognitive impairment but does not clearly precede it (Richard et al., 2013). To design effective interventions to manage cognitive decline, depression should be considered as an important comorbidity targeting cognitively impaired individuals.

Music therapy is a non-pharmacologic intervention which may improve the emotional health in cognitively impaired individuals. Studies have shown that the use of preferred music therapy decreases depression in older adults (Han et al., 2010; Raglio et al., 2008). Evidence suggests that even a music intervention with modest intensity and dose, such as 1 hour every week for 8 consecutive weeks (total 8 hours), can help to decrease symptoms of depression (Han et al., 2010). Thirty-minute music sessions over sixteen weeks have shown: (a) decreases in both behavioral and psychiatric symptoms, (b) increases in

empathetic behavior such as smiling and body movements, and (c) decreases in non-empathetic behavior (not smiling, moving, or singing) in adults with cognitive deficits (Raglio et al., 2008).

Gaps in Literature

There is a lack of research regarding adults with MCI listening to preferred music at home. Previous studies have shown that music interventions have been tested and used in health care facilities, not in home settings (Witzke, Rhone, Backhaus, & Shaver, 2008). Specifically, music interventions were led by health care providers, but were not patient-driven. Most of the music delivery modes were CD players, MP3 players, or radio, but no study used the iPad or mobile tablet technology to provide music to the MCI population. In addition, there is no study examining how the preferred music therapy via mobile tablet affects the mood of adults with MCI. More evidence is needed to support use of this delivery mode of a potentially beneficial preferred music intervention, and to determine the ability of older adults with MCI to utilize such mobile tablet technology.

Theoretical Framework

Psychoneuroimmunology (PNI) theory supports that the use of a music intervention can stimulate a neurological-immunological cascade that can produce psychological change (Fancourt, Ockelford & Belai, 2013). PNI is defined as a theory to explain that health is affected by interrelationships among neurologic, psychological, and immunologic processes in the human body, which are controlled via the central nervous, endocrine, and immune systems (Irwin, 2002, 2005, 2008).

The PNI theoretical framework implies that psychological processes associated with musical experiences lead to changes in the hormonal systems of brain and body and simultaneously affect their mood (Kreutz, Quiroga-Murcia, & Bongard, 2012).

Immunoglobulin A has been revealed to be particularly responsive to music. It has been shown to increase following exposure to a range of styles of music, including relaxing and stimulating music, as well as active involvement in music therapy and simply listening to recorded music (Fancourt et al., 2013). Strong patterns also have been noted with respect to cortisol, epinephrine and norepinephrine which repeatedly decrease in response to relaxing recorded music (Fancourt et al., 2013).

METHODS

Design

This is a descriptive case study using both qualitative and quantitative data examining the use of preferred music therapy delivered via a mobile tablet related to mood. Additionally, the perception of the feasibility in utilizing mobile tablet technology in an older adult with MCI is explored.

Sample

This case study includes a 75-year old female (referred to as BK) experiencing amnesic MCI living independently in her home in the community. She was recruited by word of mouth. Her MCI was identified based on clinical and neurological assessments, structural history, and a functional exam. She is a college educated woman who had expressed her concern about recent memory decline and is functionally independent, living alone in her

home. Her baseline Mini Mental Status Exam score was 29. Although this falls above the line of concern for dementia, her score shows a deviation of what would normally be expected considering she is highly educated with a college degree. Her Clinical Dementia Rating (CDR) score placed her on the borderline between 0 and 0.5, indicating a mild cognitive impairment, and a slight deviation from normal cognition. Her Geriatric Depression Score was five, indicating borderline status between normal and depressive status. It was determined that she was functionally independent regarding Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) with one or less impairments in each category. She had a history of tonsillar cancer and radiation therapy 5-years ago but has no current somatic illness, medication side-effects, nor psychiatric illness that could increase cognitive decline.

Measures

Quantitative data were collected using cognitive tests and a self-report questionnaire. A semi-structured interview was used to collect qualitative data regarding the participant's perception of music on mood and ability to utilize mobile tablet technology.

Mini-Mental State Examination: The Mini-Mental State Examination (MMSE) is comprised of 20 questions to assess global cognitive function (Drummond, Reisberg, Ferris, & Leon, 1982). A maximum score of 30 points indicates normal cognition, whereas MCI is indicated by a score of 25-29 (Folstein, Folstein, & McHugh, 1975; O'Bryant, Humphreys, & Smith, 2008; Tombaugh & McIntyre, 1992). The diagnostic validity sensitivity of this tool is 0.66-0.89 and the specificity is 0.91-0.99. The scale has a correct classification rate of 89-90% and its interrater reliability is an intraclass correlation coefficient (ICC) = 0.69

(Folstein et al., 1975; O'Bryant et al., 2008; Tombaugh & McIntyre, 1992). The MMSE has a test-retest reliability of $r = 0.38 - 0.99$ and an internal consistency of Cronbach's $\alpha = 0.54 - 0.96$ (Folstein et al., 1975; O'Bryant et al., 2008; Tombaugh & McIntyre, 1992).

Therefore, the MMSE was chosen to measure the global condition of cognitive function.

Clinical Dementia Rating: Clinical Dementia Rating (CDR) is a structured assessment of cognition that examines memory, orientation, judgment, socialization, daily living ability, and personal care. This cognitive scale is scored from zero to three in severity of impairment: A score of zero indicates no impairment, and a score of 0.5 indicates questionable impairment. It is ranked with one being mild impairment, two being moderate impairment, and three being severe impairment (considered as dementia). The CDR has an internal consistency of Cronbach's $\alpha = 0.83 - 0.84$ and an inter-rater reliability of ICC = $0.77 - 1.00$ for six domains and 0.95 for the global rating (Nyun et al., 2013). Therefore, this instrument was chosen as a valid, reliable, and in-depth measure of cognitive function.

Activities of Daily Living and Instrumental Activities of Daily Living: According to the U.S Department of Health and Human Services, Activities of Daily Living (ADLs) are the basic tasks of everyday life, such as eating, bathing, dressing, toileting, and transferring (Wiener, Hanley, Clark & Nostrand, 1990). Independent Activities of Daily Living (IADLs) capture a range of activities that are more complex than those needed for the ADLs, including handling personal finances, meal preparation, shopping, and traveling (Wiener et al., 1990). To be eligible to participate in this study, the participant had to be functionally independent, with 0 - 1 impairments in ADLs and 0 - 1 impairments in regards to IADLs.

Inter-observer reliability for self-reporting of ADLs and IADLs was shown to be excellent ($r = 0.96$ and $r = 0.99$, respectively) and test-retest reliability was considered to be good ($r = 0.59$ and $r = 0.93$, respectively) (Edwards, 1990). Therefore, these two instruments were chosen as valid and reliable to evaluate physical functionality in the daily living.

Geriatric Depression Scale: The Geriatric Depression Scale (GDS) was utilized to assess depressive status in the case study subject. This scale is comprised of thirty, yes-no questions and was administered at baseline on the first day of the study. The tool has a diagnostic validity sensitivity of 0.84-0.92 and a specificity of 0.89-0.95 (Sheikh & Yesavage, 1986; Montorio & Izal, 1996). The internal consistency is measured with a Cronbach's alpha coefficient (0.74) (Sheikh & Yesavage, 1986; Montorio & Izal, 1996). The 15-item version was utilized to measure depression in this case study. A score of zero to five indicates no depression, whereas a score of six to fifteen is indicative of depression. There is evidence that supports a strong correlation between the thirty item long version and short version of fifteen items ($r = 0.84$) (Sheikh & Yesavage, 1986).

Short Semi-Structured Interview: A semi-structured interview was conducted once at pre-trial and once at post-trial to obtain descriptive data regarding the participants' perception of the use of mobile tablet technology and the impact of preferred music therapy on mood. A sample of the interview questions include: (a) "How did listening to your preferred music therapy make you feel?"; (b) "What did you find difficult about using the mobile tablet?"; and (c) "What do you like about the mobile tablet?" In addition, the participant's perception of using a mobile tablet was examined by questions 4-9 listed in *Appendix*.

Procedure

The principal investigator (PI) and a research assistant (RA) administered baseline tests to determine participant's eligibility. These tests included the MMSE, CDR, GDS, and evaluation of ADLs and IADLs. The RA then conducted a pre-intervention interview to gain an understanding of the participant's baseline feelings regarding mobile technology and listening to her preferred music. After the determination of eligibility, a scheduled teaching session was planned by a student researcher.

The iPad was preloaded with the Spotify Premium application, which had a playlist consisting of 386 classic country songs per the participant's music preference, and was downloaded so it could be accessed without access to the internet. The participant was instructed how to turn on and unlock the iPad, as well as how to access the Spotify application, play/pause the music, and adjust the volume. The participant also was educated about how to charge the device. Three sessions of teaching and re-demonstration by the participant were conducted in the one-hour teaching session. The participant was given the educator's phone number, to act as technical support (Tech Support), if she should need re-direction.

The participant (BK) was instructed to listen to thirty-minutes of her preferred music on the iPad each day, and to pay attention to what impact the music had on her mood as well as how comfortable she felt working with the mobile tablet technology. A week after the teaching session, the semi-structured interview was conducted to assess the participant's perception of music on mood and her ability to utilize the mobile tablet technology. The iPad was returned at the conclusion of the study.

Ethical Consideration

The University Human Subjects Committee reviewed this study protocol and approval was obtained. The study was explained to the participant and the participant was enrolled in the study after providing informed consent.

RESULTS

Interview on Participant's Perception *before* Listening to Music via a Mobile Tablet

Current practice and Preferred Music on Mood. This case identified the participant's preferred music genre to be "Classic Country" consisting of artists similar to and including Willie Nelson, Merle Haggard, and Johnny Cash. BK indicated during the pre-trial interview that music had a positive effect on her mood. When asked how listening to music made her feel she stated, "Good, it makes me feel good, reminds me of happy times, people in the past, when I liked to dance, good times. Takes my mind off of things." She reported that her current mode of listening to music consisted of radio stations on her television, and her CD player. BK explained that she liked listening to music on the TV because, "if I hit the wrong button on my remote control, I can call them. They are there 24 hours a day."

Concerns regarding Listening to Music via Mobile Tablet. Some frustrations she reported included difficulty learning how to utilize the mobile tablet technology and not having access to "Tech Support". BK explained this saying, "I want someone I can call and ask questions to, because I hit the wrong buttons or click on the wrong things all the time and then I don't know what's going on or how to get back to what I was doing in the first place. It is frustrating and then I don't want to use it anymore." BK also viewed

downloading music via iTunes as expensive to purchase and expressed, “Why would I pay for music when I can just turn on the radio or put a CD in?”

Interview on Participant’s Perceptions *after* Listening to Music via Mobile Tablet

Theme 1. Different Music Genres Impact Mood Differently. BK expressed a positive impact on mood by listening to classic country music. When asked about the impact of classic country music on her mood, BK expressed that it relaxed her and made her laugh. She explained this stating, “When you play those songs, you remember the times when the kids were little. There is humor in country western songs.” In regards to music preference, BK stated that she liked the artists but not all of her favorite songs were on the playlist that was compiled. She stated, “It would be better if they had all the songs I like. I bet you have to pay for those though. If I was able to pick out the songs that would be better.”

When asked how listening to classic country music impacted her mood in comparison to other genres she enjoys she stated, “Opera is a different kind of a feeling, it just goes straight to your soul. I get moved by both of them to a certain extent. Country western is more fun, and opera is more of an emotional thing. You can almost feel it in your heart.” Thus, she clearly indicated that other types of preferred music elicited different feelings and emotions for her.

An improvement suggested by BK would be the ability to pick out the songs she would listen to. BK had also expressed concern regarding having to pay for the songs that she wanted. However, if internet access is available, there is no fee to access the Spotify application and find and create playlists tailored to each individual’s exact preference. The

initial playlist that was preloaded was used to simplify the difficulty of learning how to utilize the application.

Theme 2. New Technology is Challenging for Listening to Music. BK addressed several issues with usability, and indicated that she strongly felt that the device was not easy to use. She expressed this saying, “I tell you what, I don’t think I would use it. I had such a hard time turning it off. I even had to have my friends look at it.” She indicated she felt frustrated and that it was easy to give up on using the device. She expressed this by stating, “It is too darn easy to put away. I don’t have to use it. I have my computer, TV, CDs all right here.”

BK indicated that the Spotify application was too difficult to utilize when she had other ways to access music. She expressed that older generations are afraid they will break new technology. This was expressed when she stated, “Young people aren’t afraid to touch things and see what happens. That’s the thing with older people, they are afraid to push the buttons.” BK reported having a very difficult time using the mobile tablet device when trying to utilize the Spotify application. Features which were difficult and frustrating for her to use included turning off the music, and not knowing what to touch or how to get back to certain screens. She felt that if she had easier methods of accessing her preferred music, that it was easy to give up and put away the mobile tablet when it became frustrating. She also expressed a fear of breaking the device.

Theme 3. What She Needs in order to Listen to Music via Mobile Tablets. Despite reporting having a difficult time utilizing the mobile tablet, BK expressed that she felt if she spent enough time with the tablet and application she could learn it. She expressed this

saying, “I think I could get used to it, I could. I think it’d take more training, spend some time with it, just seven days isn’t long enough.”

BK repeatedly mentioned the importance of Tech Support. When asked what would make using the device easier she explained, “Well I think that they are going to need more Tech Support. You know, I wrote everything down and still had problems.” BK expressed wanting hands on help while learning, but knew that was not feasible. Therefore, she suggested being able to call Tech Support, explaining, “Tech support over the phone would probably be easy.” BK identified phone Tech Support as being an area for improvement in learning how to utilize the device.

BK also identified the difficulty of carrying and holding the mobile device as a barrier to usability. She stated “It is kind of heavy, and then it has this thing (referring to the case) on it you have to open up. Then it doesn’t stand up on its own, you have to hold it.”

Overall, usability was very difficult and frustrating to BK. When BK was asked what the advantages were in utilizing a mobile tablet to listen to music, she expressed the ability to take it anywhere as an advantage. She expressed this saying, “I think for travel it would be very good. If I eventually learn how to do it then I think sure, it will be nice, once I get familiar with the programs and stuff.”

Despite the difficulty and frustration BK had with the mobile tablet device, she felt as if with the proper training, Tech Support, and enough time she would be able to enjoy utilizing the device. In addition to that, she felt as if the mobile tablet had an advantage of being able to take it with you anywhere, especially to travel.

DISCUSSION

This 75-year old, college educated, female participant, BK, consistently stated that her preferred classic country music genre had a positive effect on her mood, reminding her of old times and stimulating laughter. This is a potential indicator that preferred music therapy can have positive effects on mood and potentially decrease depressive symptoms. BK felt as if the classic country genre of music elicited different emotions for her than her other preferred music genre of opera. When comparing the feelings, BK felt that opera was more emotional. This information indicates that there is a potential for different preferred music genres to impact adults with MCI differently, and indicates having more than one genre may be important.

BK expressed similar opinions in the pre-intervention and post-intervention interviews in regards to usability of the mobile tablet device to listen to her preferred music genre. She found that utilizing the device was difficult, even pressing the buttons. She advocated for Tech Support for older adults in both the pre- and post-trial interviews. She preferred easier modes of accessing her preferred music such as TV and CDs; this attitude remained the same during pre- and post-intervention interviews.

Different music applications should be investigated to determine if there is a more feasible mode of preferred music delivery than the Spotify application. Regardless of the application, tailored custom playlists should be available to individuals. It is important to recognize that although there was a positive impact on mood from listening to preferred music therapy, other genres of preferred music therapy may elicit different emotional responses.

Several barriers in using the mobile tablet when listening to music were identified and could be improved: (a) fear of wrong operation, (b) fear of breaking, (c) concern about expensive costs, (d) emotional frustration with limited Tech support, and (e) insufficient time to practice. Older adults with MCI need: (a) a longer time period to work with the device, (b) intensive and continuous Tech Support, (c) careful selection of a music delivery program, (d) the possibility that family members could assist them in using the technology, (e) a device which is easy to carry, and (f) a more personalized selection of music genres and playlists.

Study Limitation. This case study investigated a single participant's perceptions. Therefore, a larger study with a longer trial period should be conducted to determine if certain preferred music genres elicit different emotional responses, or if it varies from one individual to another. If a trend is shown to increase positive mood, this should be examined for the potential to decrease depression in adults with MCI.

CONCLUSION

This descriptive case study shows that mobile tablets may be more difficult for adults with MCI to learn than anticipated. More intensive and longer teaching sessions should be implemented with this population to improve the ease of usability and decrease frustration levels, along with having technical support available via phone. Older adults with MCI would be capable of learning the most basic versions of mobile tablet music applications and the mobile tablet was beneficial in the ability to take it anywhere with them.

APPENDIX

User Evaluation of the Mobile Device and Music: Patient version

Think about your use of the mobile device. Let me know if you agree or disagree with the following statements, based on the scale.

	Strongly Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Strongly Agree
1. Overall, the mobile device was:					
a. easy to use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. easy to carry.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The training in how to use the mobile device was helpful.					
a. The mobile device was easy to use.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. I would recommend this mobile device and program to others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I felt confident in using the mobile device.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. What did you like the best about the mobile device/program?					
5. What did you like the least?					
6. Do you have any suggestions for improvement in using the device?					
7. What was the most difficult aspect of using the mobile tablet?					
8. How did the music make you feel?					
9. Do you have any other comments or suggestions?					

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THE EFFECTS OF NURSE EDUCATION AND CERTIFICATION ON HOSPITAL-ACQUIRED INFECTIONS

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ABSTRACT

Introduction: According to the Centers for Disease Control (CDC), there are approximately 1.7 million hospital acquired infections (HAIs) in the U.S. that lead to 99,000 deaths annually (2011). Recent studies have found that facilities with a greater prevalence of nurses prepared at the baccalaureate-level or higher positively impact patient outcomes, however HAIs are not addressed specifically.

Purpose: The purpose of this study was to investigate the effects of nurse education and certification levels on the incidence of HAIs. The hypothesis for this study was that intensive care units with a higher ratio of nurses that have an advanced education level (BSN-prepared or above) and unit-specific certifications (CCRN) would have lower incidence rates of HAIs, specifically Ventilator Associated Pneumonias (VAP), Central Line-Associated Bloodstream Infections (CLABSI), and Catheter-Associated Urinary Tract Infections (CAUTI).

Methodology: The National Database of Nursing Quality Indicators® (NDNQI®) collects unit-level data on hospital acquired infections and RN education and certification. Incidence rates of hospital acquired infections were collected from clinical data, and calculated as the number of infections divided by device days. The RN education and certification information was collected from the RN Survey. Using regression models on data from 2012, the effect of education and certification on infection rates in critical care units was examined.

Findings: The linear regression revealed that neither certifications nor education level were significant in the incidence of VAP. Overall, certifications had no significant relationship to the incidence rates of hospital acquired infections; however the regression showed that an increase in the ratio of BSN or higher-prepared nurses proved to be a significant predictor of increased incidence rates of both CLABSI and CAUTI.

Nursing Implications: By reviewing the results on nurse education and these specific patient outcomes, more research can be done to further analyze the relationship between them. Due to the increased exposure of this subject by the 2010 Institute of Medicine “The Future of Nursing” report, the findings of this study could be used in the argument of evidence based findings that lead to the committee’s recommendation to increase BSN-prepared nurses to 80 percent by 2020.

Disclosures: Research was sponsored by the NDNQI® under contract to the American Nurses Association.

INTRODUCTION

BACKGROUND ON NURSE EDUCATION AND CERTIFICATION

In “The Future of Nursing” report by the Institute of Medicine (IOM), the committee addressed the need for highly-educated nurses. According to the report, with the shift of patient ailments to include more chronic conditions nurses must revamp their education. This means that nursing education needs to include components such as health policy, evidence-based practice, community

and public health, leadership, and teamwork and collaboration. In order to achieve this, the IOM committee recommended that “the proportion of nurses with baccalaureate degrees be increased to 80 percent by 2020” (Institute of Medicine [IOM], 2010, p. 4).

Many studies have been conducted trying to link positive patient outcomes to the level of education of the staff. In a 2011 article, it was found that the effect of only 10% more baccalaureate degree nurses would decrease the odds of mortality and failure-to-rescue in all hospitals studied by approximately 4% (Aiken, Cimiotti, Sloane, Smith, Flynn & Neff, 2011). Additionally, a study by Chang and Mark (2009) found that increasing the ratio of baccalaureate nurses showed a decrease in severe medication errors that could result in patient harm. Although, this decrease in errors was only seen until the percentage of baccalaureate nurses reached 54%.

In addition to education, certification has also been a popular topic for nurses as they find themselves getting certified to practice specialized skills and patient care. Certification provides a validation that the nurse has gone through the proper training and education and is competent in the specialized knowledge, skills and experience (American Association of Critical-Care Nurses, 2002). With the IOM report and this knowledge about certifications in mind, many studies have found that facilities with a greater prevalence of nurses prepared at the baccalaureate-level or higher positively impact patient outcomes; however, hospital acquired infections have not been addressed specifically.

BACKGROUND ON HOSPITAL ACQUIRED INFECTIONS

According to the CDC, there are approximately 1.7 million hospital acquired infections (HAIs) in the United States each year. These preventable infections lead to an average of 99,000 patient deaths and around \$20 billion in healthcare costs annually (Centers for Disease Control and

Prevention [CDC], n.d., p. 1). The three HAIs that this study analyzed were ventilator-associated pneumonia, central line-associated bloodstream infections, and catheter-associated urinary tract infections. The CDC provides detailed definitions of the infections and how they are able to develop in patients in the hospital setting.

VENTILATOR-ASSOCIATED PNEUMONIA (VAP).

VAP is a pulmonary infection that develops in a patient who is receiving therapy from a mechanical ventilator. The mechanical ventilator improves the patient's breathing capability by supplying oxygen through an endotracheal tube that is placed in the patient's nose (nasal), mouth (oral), or through a surgical incision in the patient's neck (tracheostomy) (CDC, 2012). Infection can arise in these patients due to microorganisms being introduced in the lungs via the endotracheal tube. The use of mechanical ventilators increases the chances of developing pneumonia by 6-21 times versus patients without a ventilator. Because of this, it is mostly seen in intensive care units and actually makes up around 27% of hospital acquired infections in the intensive care setting (Chulay, 2008).

CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS (CLABSI)

Many patients in intensive care units, as well as other units in a hospital setting, have the need for a central line. Central lines are tubes "placed into a patient's large vein, usually in the neck, chest, arm, or groin" that can be used to draw blood and give intravenous medications and fluids (CDC, 2012). These lines are usually put in place for a longer period and are more invasive than the common IV. Infection can occur more easily in a central line due to the invasiveness and the ability for microorganisms to travel through the line and into the bloodstream. When a

bloodstream infection is caused by this, it is identified as a central line-associated bloodstream infection, or CLABSI.

CATHETER-ASSOCIATED URINARY TRACT INFECTIONS (CAUTI).

CAUTIs develop in patients that have a foley catheter placed. A foley catheter is a tube that goes into the bladder and is commonly used to measure the strict urinary output that can aid in the assessment of kidney function. Urinary tract infections can involve “any part of the urinary tract, including urethra, bladder, ureters, and kidney” (CDC, 2012). These infections can be due to unsterile technique while inserting the foley catheter or the introduction of microorganisms through the tube. This kind of infection is unfortunately common in patients with urinary catheters and comprises 40% of all hospital acquired infections (Wound Ostomy and Continence Nurses Society, 2008)

STUDY AIMS

The purpose of this study was to investigate the effects of nurse education and certification levels on the incidence of hospital acquired infections. The hypothesis for the study was that intensive care units with a higher ratio of nurses that have an advanced education level (BSN-prepared or above) and unit-specific certifications (CCRN) have lower incidence rates of VAP, CLABSI, and CAUTI.

METHODS

DATA AND SAMPLE

The data for this study were collected on the unit level from the National Database of Nursing Quality Indicators® (NDNQI®). The NDNQI collects data on the incidence rates of ventilator-

associated pneumonia, central line-associated bloodstream infections, and catheter-associated urinary tract infections from clinical data and incidence rates are calculated as the number of infections divided by device days. The RN education and certification information is also collected on the unit level from the RN Survey. The RN Survey looks at the nursing characteristics of the hospital unit, part of which asks the nurse to provide their highest level of education and any certifications granted by a nationally accredited nursing organization. The 2012 dataset used in this study was gathered by the NDNQI and included 679 critical care units from around the country that had data for the percent of BSN-prepared nurses or higher and at least one of the infections analyzed in this study.

CONTROL VARIABLES

The control variables of this study were divided into two categories, hospital level controls and unit level controls. The hospital level controls included the teaching status and bed size of the hospital. Teaching status was broken up into three sections, Academic Medical Center, Teaching Hospital, and Community Hospital. Bed size went from <100, 100-199, 200-299, 300-399, 400-499, and >500. The unit level control variables included staffing and skill mix. Staffing was calculated by the RN hours per patient day (RNHPPD). RNHPPD measures the supply of nursing relative to the patient workload (National Database of Nursing Quality Indicators, 2012, p. 8). Skill mix was analyzed by the combination of different categories of workers (RNs, LPNs, UAPs) that are employed for the provision of care to patients.

DATA ANALYSIS

The NDNQI has adapted the Donabedian's conceptual framework of identifying the effects of structures and processes on outcomes into their approach of data collection (Montalvo, 2007, p.

1). This study examined a portion of the framework by observing the influence of structural indicators on patient outcomes. In order to evaluate the relationship that education and certification has on the incidence rates of the three HAIs, a linear regression model was used to analyze to the 2012 dataset.

RESULTS

CHARACTERISTICS OF DATA SET

Descriptive statistics of the control variables were performed. Teaching status put the data into three categories, with a majority of critical care units being from community hospitals (46%), a little over a third from a teaching hospital (36%), and the minority at academic medical centers (18%). The units showed considerable variability in the bed size of the hospitals. The results showed that 12.1% had fewer than 100 beds, 19.4% had 100-199 beds, 27.1% had 200-299 beds, 16.5% had 300-399 beds, 9.0% had 400-499 beds, and 15.9% had equal to or more than 500 beds (Table 1).

TABLE 1 SAMPLE BED SIZE STATISTICS

Category	Bed Size	Valid Percentage
1	<100	12.1%
2	100-199	19.4%
3	200-299	27.1%
4	300-399	16.5%
5	400-499	9.0%
6	≥500	15.9%

Staffing, in the form of RNHPPD, was evaluated from the 679 critical care units in the dataset. The mean RNHPPD was around 15. This means that out of the 24 hours in a day, on average the nurses were giving direct patient care for 15 hours. The analysis of the skill mix of the units showed that on average 90.4% of the staff on the intensive care units were Registered Nurses. There was some variability on this descriptive ranging from 63.7% to 100% of staff being RNs.

RN EDUCATION AND CERTIFICATION RELATIONSHIP WITH HOSPITAL ACQUIRED INFECTIONS

Ventilator-Associated Pneumonia. There were 589 units from the dataset that had data on both RN education and certification and VAP. The percent of nurses certified showed no significant relationship with the incidence rates of VAP ($\beta = -0.033$, $p = 0.445$). The percent of RNs with an education level of baccalaureate or higher also showed no significant relationship with VAP rates ($\beta = 0.003$, $p = 0.942$).

Central Line-Associated Bloodstream Infections. The effects of RN education and certification on central line-associated bloodstream infections were also examined. Out of the dataset there were 666 critical care units that had data on both RN education and certification and CLABSI incidence rates. The results showed no significance in the relationship between RN certification and CLABSI rates ($\beta = -0.074$, $p = 0.065$). However, the percentage of nurses that held a baccalaureate degree or higher did show significance with the CLABSI incidence rates ($\beta = 0.123$, $p = 0.006$). From the results of this regression model, a significant relationship can be seen between a higher ratio of baccalaureate-prepared nurses and a higher ratio of CLABSI rates.

Catheter-Associated Urinary Tract Infections. The final regression model examined the relationship between RN education and certification and CAUTI rates on 567 critical care units. The percent of RN certifications showed no significance with the incidence rates of CAUTIs ($\beta = -$

0.052, $p = 0.210$). When analyzing the percent of RNs with a baccalaureate degree or higher, the results showed significance in the incidence rates of CAUTI ($\beta = 0.114$, $p = 0.013$). Like the results from the CLABSI, it was found that higher RN education level had a significant relationship with higher incidence rates of CAUTI.

DISCUSSION

The results found from this study did not support the hypothesis that higher RN education and certification levels would result in a significant decrease in negative patient outcomes such as HAIs. In all three of the regression models for the HAIs, none resulted in any significant relationships between certification of the nurses on the units and HAI rates. Because of this, more research is still needed on the subject of nurse certifications and its impact on patient outcomes. The results of this study have also shown that having a higher ratio of baccalaureate or higher-prepared nurses is associated with higher incidence rates of CLABSI and CAUTI.

LIMITATIONS

One of the limitations of this study is related specifically to the fact that this was a secondary analysis rather than experimental data. Because of this, no actual causality can be predicted. Another limitation of this study was that the data was collected solely from facilities that participate in NDNQI®; therefore the facilities in the sample are not representative of all hospitals. In addition to this, the sample was only taken from intensive care units, which is not representative of all units in all hospitals.

Some limitations that could have precipitated the results showing higher RN education has a significant relationship with increased CLABSI and CAUTI rates were also examined. The first limitation hypothesized was that there is no risk-adjustment for patient acuity. The infection rates

are greatly influenced by patient acuity on the unit, and that could alone overwhelm any other potential predictors of unit differences, like RN education. Secondly, there could have been a more significant variable that was not controlled for that is causing the inverse relationship. In addition, this study treated the variables as continuous and linear, even though there were a large proportion of units that had zero infections so the distribution of the data is non-normal. To help correct this last issue, another analytic approach could be used on the data.

NURSING IMPLICATIONS

The purpose of this study was to find a correlation between nurse education and certification on hospital acquired infections. By reviewing the results on nurse education and these specific patient outcomes, more research can be done to further analyze the relationship between them. Due to the increased exposure of this subject by the 2010 Institute of Medicine “The Future of Nursing” report, the findings of this study could be used in the argument of evidence based findings that lead to the committee’s recommendation to increase BSN-prepared nurses to 80 percent by 2020.

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